

## Inside Dope

By GEORGE  
F. TAUBENECKLearn to live and laugh —  
thus delay your epitaph

Stories of the Week  
Bully for Small Towns  
On the Other Hand  
Quotable Quotes  
Who Needs Oil, Coal, or  
Gas?  
No Argument Here

Serfass Heads  
Westinghouse  
Cooling Div.

PITTSBURGH — Raymond K. Serfass has been appointed manager of the air conditioning division of Westinghouse Electric Corp., succeeding Bruce D. Henderson, it was announced here last week by Ronald N. Campbell, company vice president.

At the same time, it was announced that Henderson, vice president of Westinghouse, has been appointed to the staff of John K. Hodnette, executive vice president of the corporation.

Since becoming a student engineer with York Corp., Serfass has served a total of 25 years in the air conditioning industry. He progressed to vice president, general manager, and director of that company.

When York merged with (Concluded on Page 21, Col. 2)

C. W. Moeller Will  
Manage G-E Room  
Unit Department

LOUISVILLE, Ky. — Appointment of Carl W. Moeller as general manager of General Electric Co.'s room air conditioner department has been announced.

Moeller has been general manager of G-E's appliance motor department at DeKalb, Ill. since 1952. He succeeds Paul M. Augenstein who was recently named president of Chrysler Corp.'s Airtemp Div.

Moeller joined G-E after graduating from the University of Minnesota in 1935.

## "Vingt et Un"

Everyone Invited To Attend RSES  
Educational Sessions Nov. 21-24

CHICAGO — "Vingt et Un" may be just French to you, but it will have added significance and meaning to service engineers planning to attend the 21st annual convention of the Refrigeration Service Engineers Society at the Neil House in Columbus, Ohio, from Nov. 21 to 24.

A. Starr Hull, executive secretary of the Air Conditioning & Refrigeration Wholesalers, will explain all when he gives the first of 10 talks scheduled on the three-day educational program.

All refrigeration industry personnel, whether members of the RSES or not, are invited to (Concluded on Page 21, Col. 2)

Wholesalers See '58 as Good Year Despite  
Pressing Problems with Mfrs., Customers

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Issued every Monday at  
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Established 1926

Member,  
Associated  
Press  
Publications

ABP

ABC

Member,  
Business  
Bureau of  
CirculationsMost Are Optimistic  
About Future Prospects

SAN FRANCISCO — Present-day wholesalers of air conditioning and refrigeration parts, supplies, and equipment face many pressing problems in their relations with their suppliers (manufacturers) and with their customers, but most of them see 1958 as a good year, and a big majority of these wholesalers are heavily on the optimistic side about their future prospects.

This summary of the situation comes out of the annual meeting of the Air-Conditioning & Refrigeration Wholesalers, national association of the supplies outlets, held for the first time on the West Coast.

Major problems with manufacturers, as the wholesalers see it, are poor delivery practices, manufacturers' policies which seem harmful, direct selling practices, and freight. A variety of other lesser problems were also specified.

In their dealings with customers, the matters of credit and price cutting far outweigh all other difficulties, among which were communications, application and equipment selection problems, the matter of who the wholesaler should sell, and 5-year warranties (which also got some mention in problems with manufacturers).

And these wholesalers, who had their beginnings as suppliers of refrigeration parts and equipment, indicated in a reply to a survey that they are still doing the bulk of their business with the refrigeration trade. There also seems to still be a split in opinion over whether this type of wholesaler can function well and profitably as a wholesaler of packaged air conditioning and heating equipment, and as to how intensively (Continued on Page 14, Col. 3)

F. J. Kreissl Heads  
Detroit Controls

DETROIT — Fillip J. Kreissl has been named president of the Detroit Controls Div. of American Radiator & Standard Sanitary Corp., it is announced by Joseph A. Grazier, president of the parent company.

Kreissl succeeds W. A. Haist, Jr., who resigned to become president of Sprague Meter Co., Bridgeport, Conn. Detroit Controls manufactures automatic controls and valves for the heating, air conditioning, transportation, refrigeration, and appliance industries.

Kreissl, who is 37, joined the Detroit division in 1941 when he became a trainee in the sales (Concluded on Page 21, Col. 2)

# Hiring Practices Checklist

## Group Drafts Guide To Help Contractors Comply with Recent NLRB Decision Holding Union and Contractor Responsible for 'Illegal' Practices

WASHINGTON, D. C.—Text of the checklist on drafting hiring clauses and procedures that the National Association of Plumbing Contractors sent to its members on Oct. 24 as a guide in drafting collective bargaining agreements is reproduced below.

The checklist was drawn up by a subcommittee of lawyers representing NAPC, the United Association of Plumbers & Pipe Fitters (AFL-CIO), and seven other contractor associations, including Refrigeration & Air Conditioning Contractors Association.

It is intended to help contractors comply with the National Labor Relations Board's decision in the Mountain Pacific case. In that case the board held both union and contractors jointly liable for penalties if illegal hiring practices are uncovered.

### The checklist:

#### I.

The Committee (Joint Industry Program Committee) makes no recommendation whether there should be exclusive, non-exclusive, or unilateral hiring plans. This decision should be left to local collective bargaining. This checklist merely covers points which should be considered to conform with NLRB decisions.

#### II. Exclusive Referral Plans

If exclusive, the following points to be considered for inclusion or exclusion in order to comply with recent board decisions and Fenton (Jerome D. Fenton, NLRB general counsel) interpretations:

1. An affirmative disclaimer of application of union membership, by-

laws, rules, regulations, etc. Language similar to that set forth in Article V, Paragraph 1, of the National Constructors Agreement—United Association, should be inserted in the local collective bargaining agreements.

2. Qualifications for job applicants should be spelled out in the agreement by defining a journeyman plumber, pipe fitter, sprinkler fitter, lead burner, etc. Qualifications should be the minimum standards of the U. S. Department of Labor, Federal Bureau of Apprenticeship Training, or local area practice for the particular craft.

3. The job referral procedures should be jointly administered and a joint committee should establish rules and regulations. The joint committee should be composed of an equal number of union and employer representatives. The words "operated" or "administered" mean that the employers are jointly responsible for the operation even though the plan is not actually operated by the employers.

4. Rules and regulations should cover registration of applicants, dispatching of applicants and an internal

appeal procedure for anyone aggrieved by action of the dispatching office or by failure or refusal to register.

5. Posting—at the union dispatch office and at job site. The employer and union should agree on a uniform posting of the rules, regulations, and provisions of the collective bargaining agreement. Each registrant should be given a copy.

6. Any exclusive referral plan should specifically recognize the affirmative right to reject applicants by the employer.

7. No priority in referral should be based upon residence of the applicant. The Committee believes that giving preference by groupings depending upon residence, as published in Construction Daily Labor Report, examples of hiring clauses recently drafted, is not desirable for adoption. The Committee feels that such groupings may be declared discriminatory in operation by the Board.

8. Registration should be permitted of all applicants who satisfy the qualification requirements (see Part 2 above). A signed statement by the registrant should be accepted as prima facie evidence of the required years of actual practical working experience in the trade. If applicant makes false representations, he should be subjected to loss of use of dispatching procedure, loss of job, etc.

9. An alternative requirement could include (1) minimum number of years experience at the trade plus (2) passing standard examination determined by joint board. Joint board may ac-

cept proof of applicant's passing municipal examination, civil service examination, or vocational school examination.

Where there is a Joint Local Apprenticeship Committee, there is no need for a joint examining board because the Apprenticeship Committee will function as such. In addition to the foregoing, there should be provision for an appeal by the applicant to an impartial umpire if the Joint Committee or Joint Apprenticeship Committee is deadlocked on the issue of qualifications of an applicant.

10. Files of examining committee and the Joint Committee operating the referral system should be kept separately from the local union files, including its minutes, records, etc., and should be under the control of the Joint Committee.

The Committee believes that provisions in some contractual agreements, as reported in the Labor Reports, whereby an examination by a local union unilaterally, as compared with a joint committee journeyman examination, is questionable in the light of the Daugherty case and other cases set forth in the comments to Question 3(c) of the Fenton questions and answers.

#### Dispatching

11. There are several ways of dispatching and these are primarily for local consideration and bargaining. The following methods are believed to be legal and are recommended by the Committee:

(a) Simple Rotation Referral—first in and first out.

(b) A priority of rehire based on length of employment in order to protect accrued benefits such as pension, vacation, health and welfare, and other benefit rights.

(c) Contractor calls for certain applicants by name, by classification, or for key employees or for supervisory help.

(d) Appeal procedure by an individual who claims discrimination in dispatching procedure. Decision of the committee or impartial umpire is final, binding, and conclusive on all parties.

NOTE: The Committee also points out that arrangements in some contracts whereby temporary employees are dispatched subject to being replaced by so-called permanent employees is a questionable practice.

#### III. Non-Exclusive

The Committee defines non-exclusive hiring as an arrangement whereby:

1. The local agreement or practice does not require contractors to call the union for men but contractors may call the union and

2. Contractors do not call the union for all men but hire a work force by hiring all men at job site, calling men direct and, in addition, calling the union for referrals.

Even though a contractor is not required to call the union for men, if, as a matter of fact, all men hired have been referred by the union, an exclusive job referral exists. However, in many areas of the country a non-exclusive hiring agreement exists by agreement or practice between contractors and unions.

Many locals permit and often encourage journeymen to solicit their own jobs and contractors hire applicants at job site by calling men direct and also acquire the balance on referrals from the union.

Where hired on the basis of referral from the union, without actually screening the applicant, the General Counsel of the National Labor Relations Board states that, as to this balance, the Mountain Pacific restrictions and qualifications apply and the referral by the union must be done in a non-discriminatory manner in order to comply with the Act. The Committee recommends that the dispatching be done in a non-discriminatory manner and that the Mountain Pacific criteria be inserted in the agreement.

The Committee points out that, while a non-exclusive arrangement is legal, the employer is prohibited from discriminating against union or non-union men when he hires at job site.

## Mason Products Moves

WOBURN, Mass. — Mason Products, Inc., manufacturer of water cooling towers, has moved from West Concord, Mass., to a new plant at 9 Cranes Court here.

President Paul H. Mason reported that increased demand for Mason water cooling towers used in conjunction with commercial and industrial air conditioning systems required a larger production facility.

At the same time, he predicted "a substantial increase in sales of water-cooled air conditioning systems during 1959. Reports from the field indicate this upsurge has already started on a limited scale."

Highest Quality and Most Economical . . .

## Quietest Direct Drive Blower Motor

**Redmond's New Design Reduces Blower Vibration to One-Fifth that of units using Conventional Shaded-Pole Motors**

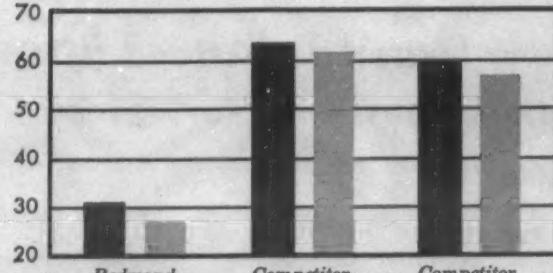


Place a mechanic's stethoscope on the end cap and you can easily hear the difference between the newly-designed Redmond Type AY and motors of conventional design. Try it on a Redmond 1/6 hp—the noise level is about that of a 1/35 hp motor of conventional design.

Apply vibration tests and you will be quick to agree that here is the quietest direct-drive blower motor available. The AY Tri-Flux motor is designed and manufactured in every way to give years of trouble-free service and whisper-quiet operation. The positive oil system provides force-feed lubrication. Recirculating the oil assures maximum bearing life.

The graph shows vibration test results on the new Redmond design and two competitive motors. These tests were made with the best vibration testing equipment available. The solid black bar shows vibration on the motor end cap; the gray bar shows vibration on the blower housing. The graph is decibel readings on 120 cycles, since the 120 cycle frequency is the one that is the basic source of nearly all noise problems. Reduction of vibration is a logarithmic function—the reduction of vibration in the Redmond motor to 33 decibels reduces noise to only 1/5th that of conventional motors.

The new AY is ideal for a wide variety of applications requiring a whisper-quiet, economical, high-quality motor. Contact us at Owosso, Michigan, and we will have the Redmond sales engineer in your district call you at once.



**Redmond**  
COMPANY, Inc.  
Subsidiary of CONTROLS COMPANY of AMERICA  
OWOSO, MICHIGAN  
THE BIG NAME IN SMALL MOTORS





*Introduces...*

A New Concept  
in Cooling Towers

ADJUSTABLE CAPACITY

# Flexi-Tower

- MORE CAPACITY
- INFINITE SELECTIONS
- LOW COST
- BUILT TO B.A.C. QUALITY STANDARDS

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**Joint Industry Program Committee**

MEMBERS of the Joint Industry Program Committee, representing contractors and trades in the air conditioning, refrigeration, heating, and various piping fields, met recently in Colorado Springs, where they developed plans on hiring procedures to conform with recent NLRB rulings. (See story on page 2.) Committee members also remained to participate in the annual convention of the Refrigeration & Air Conditioning Contractors Association (RACCA).

Left to right here are Carl N. Finley, New Orleans, second vice president, National Association of Plumbing Contractors; Horace E. Wetzel, Cleveland, president, Mechanical Contractors Association of America; John J. McCarron, assistant general president, United Association; Charles L. Walling, Los Angeles, president, RACCA; and John M. Rhodes, Sarasota, Fla., president, National Association of Plumbing Contractors.

**Jack Searls Joins Controls of America**

SCHILLER PARK, Ill.—Jack Searls has joined Controls Co. of America as manager of field sales, heating and air conditioning controls, A. L. Topp, vice president, announced.

The new field manager will be located in the Milwaukee office where he will direct activities of the firm's OEM field sales force, Topp said. In addition,

Searls will manage the gas product line, concentrating immediately on building gas controls sales.

He has over 20 years' experience in the controls industry, formerly holding positions as director of sales for Penn Controls and vice president in charge of sales at White-Rodgers.

**Seek Easing of Smoking Ban on Conditioned Buses**

PORLTAND, Ore.—Air conditioning is being used as a wedge in an attempt to get the Oregon Public Utilities Commission to partially lift its ban on smoking in inter-city buses in this state.

The Oregon Bus Association and operators of two bus lines are asking the commission to the matter.

allow smoking in the three rear seats on air conditioned buses. Over protests of volatile non-smokers at a recent public hearing, they pointed out that in an air conditioned bus the air is changed completely every three minutes.

The commission is studying the matter.

**Sept. Refrigerator, Freezer Sales Top Same 1957 Period**

NEW YORK CITY—Total industry sales of electric household refrigerators and farm and home freezers in September were higher than in the same month of 1957, according to statistics released by the National Electrical Manufacturers Association.

For the first nine months of 1958, freezer sales also topped those of the like year-ago period. However, sales of refrigerators in the January-September period lagged behind those for the like period of 1957.

Sales of freezers in September aggregated 121,200, up from the year-ago total of 79,000. This brought sales for the first nine months to 835,900, compared with 745,300 in last year's corresponding period.

September sales of refrigerators totaled 294,800, compared with 265,200 in the previous September. Sales for the first nine months amounted to 2,306,400 (includes revised data for August, 1958), against 2,627,500 in the like period of '57.

These figures, it was noted, are based on expansion of data reported to the NEMA Statistical Dept. to cover total industry sales, including exports.

**Servicing Packaged Conditioners To Be N. Y. RSES Topic**

BROOKLYN—A program on the servicing of packaged air conditioning equipment has been prepared for the Nov. 12 meeting of the New York Chapter of Refrigeration Service Engineers Society.

The meeting will be held starting at 8 p.m. at the Broadway Central hotel, New York City.

The program, covering application problems, electrical and refrigeration system trouble shooting, and electrical system diagrams, will be presented by three members of the engineering department at Typhoon Air Conditioning Co., Div. of Hupp Corp. They are A. E. Weber, assistant chief engineer; J. A. Bamberger, research and development director; and Henry A. Porzio, service manager.

**Examiner Pushes Work On Ice Cream Cases**

WASHINGTON, D. C.—John Lewis, hearing examiner in the Federal Trade Commission's complaint against nine major ice cream companies of alleged unfair practices including the "giveaway" of refrigeration equipment, advised the NEWS that he is now giving his full time and attention to the case.

"However, I would not want to hazard a guess as to when my decision or decisions will issue," he commented.

The FTC's case against the ice cream companies and the companies' defense of their practices, as outlined in their briefs to Lewis, were described in considerable detail in the March 24 and 31 and April 7 and 14 issues of the NEWS.

**What he says next could make you glad**

The proud host shows the curious guest the air conditioning furnace you sold him. Here's where sales are often made or lost forever. Will the host say: "Plenty of heat in every room . . . can't even hear it . . . low cost performance . . . no mechanical trouble . . . house stays clean . . . and you can add cooling later?"

If so, you should be glad you sold him FRASER-JOHNSTON equipment. You may have another customer in the morning. If you didn't sell him FRASER-JOHNSTON, it might be well for you to get in touch with us right away — you could be missing a flock of profitable sales!

**YOU SELL QUALITY**

FRASER-JOHNSTON's basement, upflow, counterflow, and horizontal furnaces with matching coils and condensing units feature outstanding design, carefree operation, world's finest automatic controls, extra rugged construction.

**COMPARE DESIGN with the VALUE LINE**

- Requires minimum space
- Gives top heating efficiency
- High style blue-green crinkle finish
- Completely welded construction
- Fully automatic, fully guaranteed
- Basement, closet, attic or sub-floor installation
- American Gas Association and Underwriter Laboratories approved
- The QUIETEST air conditioning made
- Matching units permit add-on installation
- Factory-wired controls for easiest installation



Manufactured by

**Fraser-Johnston**

Over a Quarter Century of Leadership

1900-17th STREET • SAN FRANCISCO, CALIF.

## 83 Organizations Consider Single Housing Standard

NEW YORK CITY—Representatives of 83 organizations with an interest in home building met here recently to discuss whether a project for the development of a uniform set of building code requirements for one and two-family houses should be launched under the

procedures of the American Standards Association.

When the meeting broke up at the Henry Hudson hotel, no conclusion had been reached by the group.

The motion proposed to the meeting was: Shall an American Standards Association project on standard building code requirements for one and two-family residences be initiated?

Fifteen of the organizations present said they would cast their vote by letter. The count

on the other votes was as follows: yes, 24; no, 17; not voting, 27.

The decision of whether the motion was carried will be deferred by the Construction Standards Board of the ASA until the letter votes are received, Cyril Ainsworth, deputy managing director of the association, announced.

The original request for the development of residential building codes was made to the ASA last July by publisher Henry

R. Luce on behalf of 14 national organizations concerned with home building. He pointed out that the antiquated and contradictory building codes may add an average \$1,000 to each American home built.

As a result of Luce's request, the ASA invited about 120 national organizations with an interest in home building to attend the general conference.

Among organizations represented were: Air-Conditioning & Refrigeration Institute, American Gas Association, American Society of Heating & Air-Conditioning Engineers, American

LITTLE ROCK, Ark.—At a cost of approximately \$1,700,000, a 10-story, air conditioned luxury apartment building will be erected on W. Markham St. by Plaza Towers, Inc.

## West Coast Area Sees Trend from Mass Housing

PORTLAND, Ore.—"A marked trend away from mass housing in the Pacific coast area this year, indicates sales strategy effectively directed to families building new homes, to smaller builders, and to architects, who are responsible for this surprising upsurge in custom home building."

So said Paul H. Hammond of Pasadena, vice president of Holly-General Co., to the 65th annual convention of Pacific Coast Gas Association here.

Making his report as general chairman of PCGA's manufacturers section, Hammond stated: "Large tract developments have heretofore dominated new construction.

"This change in trend is being carefully studied by alert Pacific coast gas appliance manufacturers."

Residential construction in the west in 1958 is ahead of the same period of 1957, Hammond said, and nationally the reverse is true.

"Persons per unit of housing in the U. S. average 2.84," Hammond reported. "In the 11 western states there are 3.59 persons per unit. This is much higher than a year ago. New construction will have to speed up to keep up with housing needs in this area."

"With less than 13% of the population, this area accounted for 22% of the total U. S. expenditures in 1957 for residential alterations, additions, and repairs."

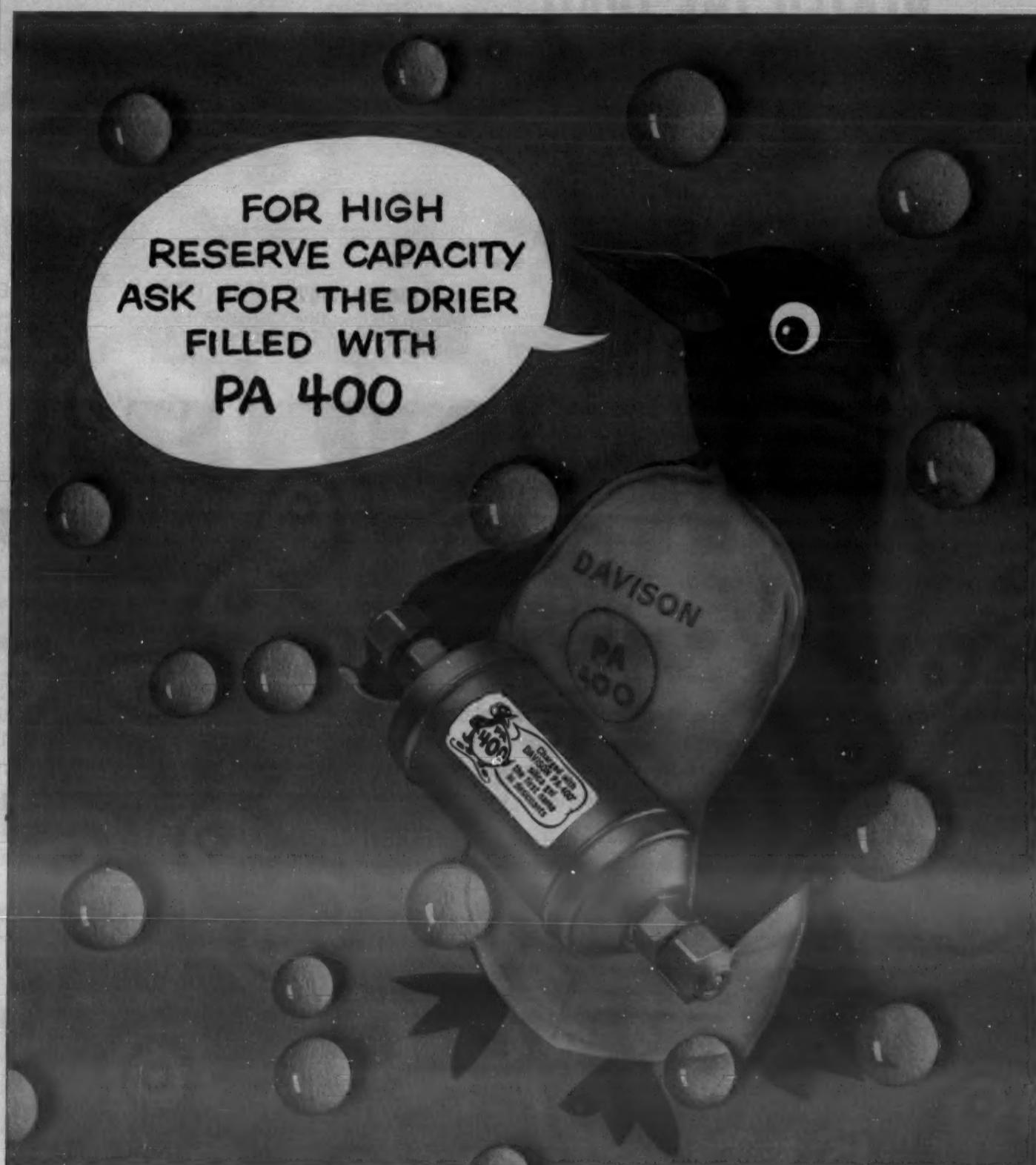
"By 1963 it is expected California will have a larger population than any other state."

"A Stanford Research Institute analysis predicts California's population will increase 82% in 20 years, and the number of households will double. The market for household equipment should be active for many years to come."

## A. B. Lewis Heads Sheet Metal Group

ATLANTIC CITY, N. J.—A. B. Lewis of Palmer-Donavin Mfg. Co., Columbus, Ohio, was elected president of the National Association of Sheet Metal Distributors at the group's 48th annual convention here recently.

J. J. Worley, Jr., and Robert W. Mason were chosen vice presidents while Munroe Best and James F. Klein became members of the executive committee for terms expiring in 1961. Thomas A. Fernley, Jr., continues as executive secretary.



**SAFETY FACTOR.** Davison PA 400® Silica Gel is the "thirstiest" desiccant around. PA 400 holds up to 40% of its weight in moisture . . . keeps refrigeration systems running even when there's enough moisture in the system to completely saturate other desiccants. So ask for the drier filled with thirsty PA 400. Both you and your customers will be happy you did. See your distributor tomorrow.

**W.R. GRACE & CO.**  
DAVISON CHEMICAL DIVISION  
BALTIMORE 5, MARYLAND



# THESE ADS BLAZED THE TRAIL FOR SALES PERFORMANCE...

[ open letter to all who sell or install  
central residential air conditioning ]

## indictment

AIR CONDITIONING IS BOUGHT... NOT SOLD\*

There's little doubt about it  
that this business is growing  
dynamically, aggressiveness selling.  
This is brought home  
loudly by some ugly factors re-  
vealed in the 1956 Suppen-  
Study on Central Residential  
Air Conditioning.

...that 40% of those who pur-  
chased a central residential sys-  
tem had never been called upon  
by an air conditioning salesman/

...that 85% of those who don't  
have air conditioning have no  
idea of either cost of installation  
or cost of operation!

...that one out of three con-  
tractors actually believe that air  
conditioning is unprofitable or has  
little demand.

\*Report of 1956 Suppen-  
Study on Central Residential Air Conditioning

What an opportunity! There is an  
industry loaded with potential. Yet,  
to date, we've harvested a very minor  
portion of it.

What's been missing is the way  
things are going? Has it moved at the  
rate you want it to?

Those involved in the very nature of  
heat and air control believe that  
aprons and methods must be followed  
in the sale... which the individual  
salesman does not.

This puts the heavy, callously  
highly profitiable responsibility  
squarely on the contractor.

But we can't leave him out there.

...those contractors have put in the  
effort and time to learn the business  
and individual contractors have learned  
a really good share of it's best

methods.

The big, big job facing the whole  
industry is the creation of a commercial  
image. The public must be made fully  
involved in air conditioning. Business  
men join in the greatest sales crys-  
tals.

Our industry has over 100,000. We need  
strong, determined, progressive sales  
men today.

Some men and firms have done a  
splendid job in this field of selling  
air conditioning. They have  
succeeded in making central residen-  
tial air conditioning an important part  
of the home as an important element  
in furnishing or heating systems.

Our holes are off in these men. For  
them we have the power, and they  
will be the leaders.

But many days are over. More  
and more men are getting into the  
field of residential air conditioning to the  
point where any firm without it is  
at a disadvantage. And the public  
where those who do not have it are  
those who can afford the better  
things of life.

It can be done. To worth a  
little. And we must  
do it now... today. Let us  
need a place. Westinghouse  
has a place. Interested?

[ Open letter to all who sell or install  
central residential air conditioning ]

## WHAT THIS BUSINESS NEEDS IS A NEW WAY TO MANUFACTURE SALES!



SEPTEMBER, 1957

Response was immediate. Contractors throughout  
the country acclaimed Westinghouse for its  
forthright position on industry needs.

OCTOBER, 1957

To increase sales effectiveness... to drive  
up market saturation percentages, new selling  
and promotion ideas were essential.  
Westinghouse provided them!

# LOOK WHAT

**Scores of profit-minded contractors swelled the ranks of Westinghouse Specialists to form the most dynamic sales force in the industry. And the switch is still going on, as Westinghouse opens the door for more men serious about their business—those who have the ability to capture for themselves a greater and more profitable share of their market.**

**Westinghouse and its franchised distributors shared a healthy increase in sales—in spite of a recession, in the face of a cold spring and a cool summer—even though the industry as a whole fell somewhat short of its predicted goals. Individual distributors gained strength and**

# WATCH WHAT'S COMING...

## YOU CAN BE SURE... IF IT'S

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS", CBS TV MONDAYS



## Inside Dope

By GEORGE  
F. TAUBENECK

(Concluded from Page 1, Col. 1)

"Guess you don't know nuthin' about Missouri mules," explained the Pro, patiently. "First off, you gotta get their attention."

### On the Other Hand

The "state of mind" rural citizens are trying to protect is good. But—it is divisive. On the one hand are those who want to hold on to what they have. They love fishing and hunting—and distrust industrialization.

To these standpatters we can point out that technological development lifted us out of the stagnant 30's, and that steady gains in productive efficiency is vital to the attainment of those

goals our younger men seek. The have only to look about us, would you mind mentionin' me first?"

Better understanding of the true social meaning of technological advances is urgent for rural areas. Story in illustration follows.

Farmer drove a load of manure toward town. On the way a small boy hitchhiked a ride.

State police had set up a roadblock on the highway. They stopped the farmer, and asked him what he had in his truck.

"Oh, nothing but a load of manure and a little boy."

He was allowed to pass on; but three miles further down the pike he was stopped by another roadblock.

To the same question the farmer gave an identical answer. Piped up the hitchhiker:

"Mistuh, next time they stops

them to note the highly mechanized farmers who now produce far more than we can eat."

Another illustrative story: Casually, upon leaving the dinner table, father remarked:

"A load of manure for the garden will arrive tomorrow."

Teen-age daughter was disgusted.

"Motherr," she protested. "How uncouth. Can't you get him to use the word 'fertilizer'?"

"Honey, it took me 12 years to get him to say 'Manure.'"

### Quotable Quotes

"Some turn almost everything into happy thoughts; others into fearful thoughts. Some turn the things they say into ideas for better things; others into criticism of what they think they see."—NORMAN G. SHIDLE, SAE Journal.

"Inside his philosophical optimism, the American is nervous, anxious, worried, and driven by the desire to get ahead, and therefore spends his life in a frantic rush to go places, to keep up with the Joneses, to get his hands on money and rank. He has a roseate view of life, yet is not a happy man. He gets rich, but has little time to live. He is so obsessed with tomorrow that today goes to the boards. And the pace and rhythm of his whole life are much more attuned to a machine than a human being. He has achieved vast wealth, but this has not yet paid off for him in terms of serenity and happiness. Whether it will, is, of course, one of the great, imminent, unanswered questions in American civilization."—LEO GURKO.

"Life without friendship is like the sky without the sun."—Biblical Recorder.

### Who Needs Oil, Coal, or Gas?

Both General Electric and Westinghouse are experimenting with the fuel cell—which reverses the mysterious solar process that creates organic compounds from air, water, and carbon dioxide.

This so-called fuel cell converts the stored energy of existing organic compounds directly into electricity—theoretically with 98% efficiency.

One such apparatus consists of an unglazed porcelain dish containing ordinary potassium hydroxide set in a solution of iron chloride. The two solutions have electrodes connected to a small electric motor.

When a drop of formaldehyde, alcohol, or unnamed organic compound falls into the porcelain dish, an electric current is created.

Energy which came originally from the sun thereupon is released and converted directly into electricity.

Right now this deal may not sound interesting to most readers. Please put this in your future book, though: we are told the "fuel cell" may obsolete atomic-power electricity before the latter gets going good!

### No Argument Here

Surely college students above everyone should realize that the only security in the whole wide world is that which you've got under your hat, metaphorically speaking.

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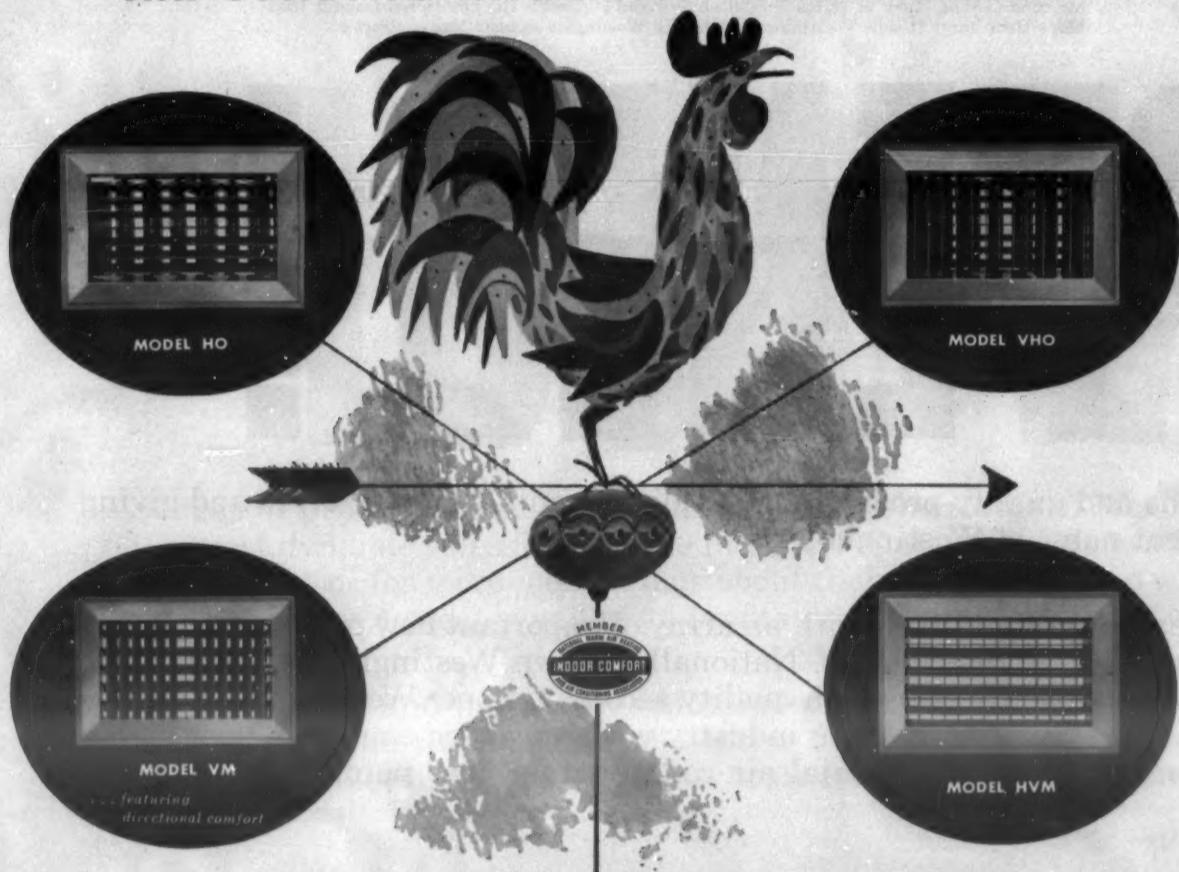
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## Moisture Travel Through Slab Structures Poses Serious Air Conditioning Problem

ST. LOUIS — High humidity conditions which are overlooked or perhaps develop after an air conditioning system is installed can play havoc with a structure and its furnishings, according to Charles F. Gilbo, Armstrong Cork Co. physician.

In a talk before the 10th annual educational conference of the Midwest Association, Refrigeration Service Engineers Society here, Gilbo outlined some of the "pitfalls" that have come to light recently in connection with insulating chilled water lines, chiefly in motel air conditioning applications.

Excessive sweating of chilled water lines despite insulation can cause dripping on ceilings (with overhead lines) and consequent ruin of ceilings, carpeting, and other furnishings.

### Actually Makes Bad Situation Worse

Most frequently, though, moisture infiltration from the ground either in slab or crawl space construction unprotected by an adequate vapor barrier is the chief culprit, according to Gilbo, who also indicated that air conditioning actually makes a bad situation worse in a case of this kind.

"By removing moisture from the air, the cooling system increases the vapor pressure difference between the interior and the ground, thus causing more moisture to migrate into the structure from the ground," he explained.

This is not meant to imply that such places shouldn't be air conditioned but that this moisture problem must be carefully studied and considered when designing and installing air conditioning, Gilbo advised.

### Poor Design Cited As Cause In Some Cases

Some instances were cited by Gilbo where poor design of the system contributed greatly to the moisture problem. In one job moist air from the motel's laundry room was circulated through an indoor evaporative condenser and thence into the machine room.

"We checked this one and found 95° F. air at 98% relative humidity being recirculated through the machine room," Gilbo said.

In other cases chilled water lines have been run through a trench directly above a flowing drainage system.

One of the worst cases he cited involved a motel with slab on ground construction lacking a vapor barrier on the ground and reinforcement of the concrete slab where the air conditioning and water piping were imbedded in the slab. Moisture migration through the slab soon caused the slab to crack and dip in some places, thus break-

ing the imbedded water lines. The results were almost tragic.

Some suggestions that could avoid these problems were offered by Gilbo:

"If there are no proper vapor barriers between the ground and the structure, be sure to examine the place carefully for any evidence of moisture coming through the floor or walls before installing air conditioning because air conditioning will lower the vapor pressure and increase the moisture intake.

"If you decide you'll need more pipe insulation than normal to prevent condensation, then you'll also need bigger air conditioning equipment than normal to handle the increased moisture load.

"Insulate all lines, hangers, etc. connected to chilled water lines even though they carry no chilled water because they'll get cool by conduction and may sweat.

"Chilled water balancing valves located in certain areas, such as above ceilings, should be of the key type because this type can be insulated fully.

"Even if you're building a plain garage, put down a vapor barrier first because the garage might be used for something else later.

"If you're running water lines through a concrete slab, not only should there be a vapor barrier beneath the slab but the slab should have steel reinforcing."

## Atlanta Motor Hotel Has Year-Round Comfort Control In All Guest Rooms

ATLANTA — The Atlanta three, or four smaller rooms. Cabana motor hotel has done something about the weather for those who are filling its 250 guest rooms following its recent opening as "the first major hotel Atlanta has had on its building records for 32 years."

In each of the 250 guest rooms of the five-story Atlanta Cabana is a concealed unit and a wall thermostat "ready at any time of the year to give the occupant individual control over the temperature," it was pointed out.

The room units have been installed in the ceiling of the clothes closet with outlets to serve bath and bedroom.

The convention hall, with a full area that seats 250 persons, can be partitioned off into two, each with its own filter."

Separate systems have been installed in the large restaurant Charles Leb is opening in the Cabana, in the two-storyed glassed-wall lobby, and in the lounge adjoining the restaurant.

General Electric and Carrier equipment is used for this individual servicing of all the rooms in the hotel, "and there will be no dirt for a room to absorb. Both air and water are piped into the unit's areas and each unit has its own filter."

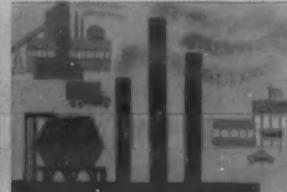


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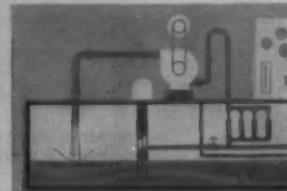
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# World's Largest Retail Food Distribution Center Uses 258 Tons of Air Conditioning

## 475 Hp. Refrigeration Capacity Needed for Food Storage

By George M. Hanning

LIVONIA, Mich. — World's cluding general offices, produce largest retail food distribution storage area, corridors between center—15 acres under one roof meat cooler and freezers, and —was opened here recently by the Kroger Co. Nearly one-fourth of that huge area is either refrigerated or air conditioned.

Keeping 150,000 sq. ft.—or nearly 3½ acres—of food storage space under constant refrigeration from -10° F. to 70° F. requires compressors totaling 475 hp. capacity. Of this 130 hp. is in standby capacity.

Air Conditioning an estimated 83,000 sq. ft. of space in-

Close by the distribution center is another building still under construction. It encloses three acres under one roof. When finished before the end of the year, it will be the mid-west's largest automatic bakery. Thirty tons of air conditioning is being installed in this building.

The food distribution center

is already receiving and moving over loading docks for 117 trucks and three railway spurs 13 million pounds of food a week to 105 Kroger stores in Detroit and eastern Michigan. Livonia lies just west of Detroit.

Refrigeration equipment at the center was installed by the York Corp. office in Detroit. Equipment is divided into 12 systems, with a standby unit for each system, according to Joe Ditz, installation manager for York.

York installed five 40-hp. compressors, five 25-hp., and housing and transportation for seven 20-hp. compressors in a Kroger, said that previously all

machine room centrally located among the center's refrigerated compartments. Three Dover 60-ton cooling towers, mounted on the roof above, serve this equipment.

The five 40-hp. compressors are employed to maintain below zero temperatures in two huge freezers that will hold 150,000 lbs. of frozen foods and ice cream. Both can maintain -10° F. temperatures.

Two of the compressors are connected with six Dunham-Bush blower coils with 1½-hp. motors in one freezer and two others serve four Dunham-Bush coils with 3-hp. motors in the second freezer. The fifth compressor acts as standby. All coil units defrost with hot glycol.

### To Handle Own Frozen Foods

John Hodi, manager of warehousing and transportation for Kroger, said that previously all

Kroger's frozen foods were handled by distributors.

"But now we store them and dispatch them ourselves," he declared. "We'll give better service to our customers this way."

Two 20-hp. York compressors and one standby of same capacity hold to 32° F. a mammoth beef cooler where quarters of beef from 1,200 head of cattle can hang at one time. That's 30 carloads of meat, commented Hodi.

Mounted in the cooler are 36 "Coldjet" coils made by Imeco, Inc. of Chicago. Each compressor handles 18 of the F-12 coils.

One 20-hp. compressor holds 32° F. temperatures in the pork cooler and 36° F. in the sausage room. A 25-hp. compressor maintains 40° F. temperatures in a bacon slicing room and in the poultry room. They are backed up by a 25-hp. standby unit. Dunham-Bush coils are employed in all rooms.

Two 20-hp. York compressors, with a standby of equal size, serve 24 Marlo air handling units charged with the delicate task of ripening bananas in 24 separate storage rooms. Each machine operates with 12 of the Marlo units, which are equipped with six-row fin coils using F-12 and a single row finned steam coil.

The rooms are capable of handling 36 carloads or 432 tons of bananas a week. When the bananas arrive, they are put in rooms at 70° F. and 95% r.h. After 36 hours, temperature is reduced to 66° F. A day and a half later, it is reduced to 60° F., remaining there until the room is unloaded.

### Banana Room Controls Manually Operated

Temperature controls on the banana rooms for the ripening process are manually operated.

One 25-hp. compressor holds wet produce at 36° F. and dry produce at 40° F. A 20-hp. unit keeps an egg storage room and a butter and cheese room at 40° F. A 25-hp. compressor does standby duty. All these rooms, too, are equipped with Dunham-Bush unit coolers.

Air conditioning and heating installation was made by Page Plumbing and Heating Co. with the W. T. Heaney Co. doing the refrigerant piping, testing, and starting of units.

Cooling equipment was supplied by Deke Jones Co.

### Office Area Cooling

An 80-ton central system cools the general offices, while packaged units cool scattered areas elsewhere in the distribution center.

The office area measures 240 by 130 ft. in which 150 executives and office employees work. Small individual offices are located around the perimeter with

(Concluded on next page)

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## Kroger Food Distribution Center--

(Concluded from preceding page) other small offices and a large open office space in the interior.

To handle the 797,000 B.t.u. cooling load, two 40-ton Worthington water chillers using F-22 are employed. One pipes hot and cold water to the 15 small offices around the perimeter. Each office contains a Modine fan and coil room unit of 300 to 600 c.f.m. capacity.

The other is connected to a multi-zone duct system handling the interior area and lobby. A Governair multi-zone fan and coil unit, driven by a 15-hp. motor and handling 25,500 c.f.m. is employed.

Interior area is divided into five zones with thermostatic control in each zone. Supply ductwork is overhead to ceiling diffusers. Return duct is under the floor. Wall-type return grilles are near the floor.

Hot water for heating is provided by an oil-fired Bryan Steam Corp. heating boiler of 1.6 million B.t.u.h. capacity. It is one of five large Bryan boilers to supply unit heaters during the winter.

The multi-zone system is designed to supply 10% fresh air, while the room units will supply 25% fresh air.

### Duct Runs 300 Ft.

Because the mechanical equipment is at the far end of the office from the lobby, the duct to the lobby runs close to 300 ft. As a result, a booster coil is required to handle the lobby load. This coil, inserted in the trunk duct just before it reaches the lobby, reheats, or re-cools, the air as required. It has a 40,000 B.t.u. capacity and 2,500 c.f.m. fan.

Two 40-ton Marley cooling towers lower condensing water temperature for the office cooling equipment.

Three 40-ton UaAirco water-cooled packaged units cool a 165 by 190-ft. open produce storage room to 55° F. in summer and heat it by means of auxiliary coils, in winter.

### Units on Platform Suspended from Ceiling

To preserve storage space, the units sit on a steel platform suspended from the ceiling. Two on one side are about one-third the distance from the ends of the room. The other is centered on the opposite wall. They throw 8,350 c.f.m. of chilled air into the room and operate on 5-hp. blower motors.

Operation of the air conditioners is individually controlled

### Handy Tube Bender

Smoothly Bends any pipe or tubing  $\frac{3}{8}$ "- $1\frac{1}{8}$ " O.D.



HOLSCLOW BROS., INC.

438 N. Willow Road • Evansville, Indiana

by Johnson Service Co. controls. Four Marley cooling towers serve produce and meat areas.

Two 25-ton UaAirco packaged units maintain lowered temperatures in the long, wide corridor in the meat storage area. The corridor is 450 ft. long. For about 300 ft. of that length it is 40 ft. wide. For the remainder it is only 30 ft. wide.

One air conditioner is at the wide end, throwing air up the corridor. The other is near the point where the corridor narrows. It handles the narrow portion and adjacent portions of the wide section.

These units move 13,400 c.f.m. each with a 7½-hp. blower motor. They are suspended from the ceiling to keep floor space clear.

Three small offices devoted to ditioning, have been awarded at the store construction depart- a cost of nearly \$40,000.

ment are cooled by a 5-hp. Worthington unit. A 3-hp. model cools the produce office.

In both cases, the units are mounted on a mezzanine over the office with air distributed through a short length of duct to the office space below. Equipped with hot water coils, they provide heating, too.

A 30-ton Worthington unit with Governair multi-zone air handling unit will serve the new bakery.

### Shirtmaster Plant To Be Air Conditioned

ABBEVILLE, S. C. — The local plant of Shirtmaster, Inc., under new management, was ex-

pected to resume operations at an early date. Contracts for renovation and modernization of the plant, including air con-

ditioning, have been awarded at the store construction depart- a cost of nearly \$40,000.

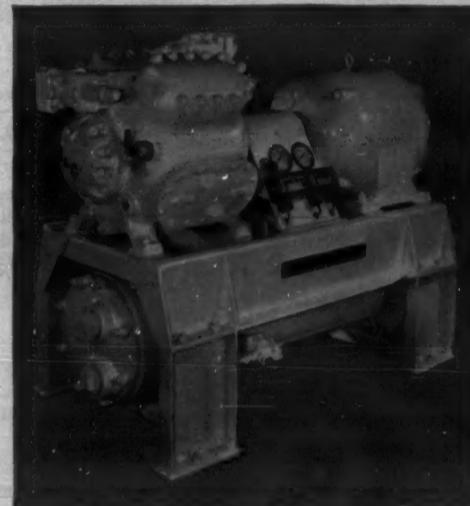
## Small Packaged Conditioners Control Humidity In New Lithography Plant

CINCINNATI — Using small erating off a single Minneapolis packaged air conditioners to Honeywell control, they keep provide the humidity control needed to operate Technicraft Inc.'s new lithographing plant in Hamilton county just outside Cincinnati at a cost of only \$7,000 was a bargain difficult to match with central air conditioning.

So claims R. N. Brown, manager of the Fedders Div., Richards Electric Co. here who engineered the 20-ton installation.

Humidity level in the printing plant and lithographing room is held to within 50 to 55% by five 3-hp. and one 5-hp. Fedders packaged air conditioners.

Four of the 3-hp. units are mounted in windows around the 80 by 80 ft. printing plant. Op-



The B&G Condensing Unit offers an impressive list of features, many of them exclusive, which make it completely outstanding. It is amazingly compact as well as efficient—the shortest unit available on the market today.

The cut-away illustration shows the highlights of compressor construction—

- 1 **Compressor housing.** Monobloc design using pressure-tight iron which meets Underwriters' requirements for use with R-12 or R-22.
- 2 **Cylinder heads and cover plates.** Cast of same material as compressor housing.
- 3 **Suction and discharge valves.** Highest grade Swedish steel—non-flexing, full floating. Low lift with positive gas-cushioned backstop for quiet operation.
- 4 **Safety springs.** Prevent damage from occasional liquid slugs.
- 5 **Pistons.** Automotive type, of light weight alloy. Full floating wrist pin, two compression rings and one oil control ring.
- 6 **Connecting rods.** Light weight, heat-treated alloy—rifle drilled to assure positive lubrication of wrist pin.
- 7 **Cylinder sleeves.** Removable cylinder liners of special alloy iron are machined and housed to a maximum tolerance of 0.0005 inches.
- 8 **Crankshaft.** High tensile, ductile iron. Greater strength and noise dampening qualities make it superior to conventional forged steel shafts. Running surfaces induction hardened and polished—shafts are statically and dynamically balanced—rifle drilled for forced feed lubrication.
- 9 **Main bearings.** Heavy wall bronze, diamond bored after assembly for close tolerance.
- 10 **Forced feed lubrication.** Positive-displacement, self-reversing oil pump supplies excessive oil to main bearings, connecting rods and wrist pins.
- 11 **Crank case heater.** Standard equipment on all compressors.
- 12 **Capacity Control.** Can be equipped with multi-step capacity control system.
- 13 **Standard equipment.** Gas and oil equalization ports, magnetic plugs and oil sight glass.

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# They'll Do It Every Time

by Jimmy Hatlo



## Water for Air Conditioners Is A Thirsty Need

IF AIR CONDITIONING is to reap its promise a commercially-feasible way to convert salt water into fresh water is an approaching necessity.

Workability of any electrical water-purifying process depends on the fact that impurities in sea water—sodium, chlorine, and some 40 other elements—are dissolved in the water in ionic form; that is, they have either positive or negative electric charges.

**To drain-flush these impurities** between 15 and 20 kilowatt hours of electricity are required to freshen 1,000 gallons of brackish water of 3,500 parts per million, and between 50 to 100 kwh. to freshen the same amount of sea water. Thus the cost of electric power at any given location would be an important element in the cost of water freshening.

Utility officials concede they still have a way to go before devices they're testing can be used on a large scale. But they're sufficiently intrigued by their prospects to spend a wad of shareholders' funds for further engineering and development.

Here's what they're trying: Water is sucked into one end of the demineralizer unit, a contraption made up of four boxes (called "stacks") which resemble oversize beehives. These "stacks" are inter-connected with a maze of pipes, tubes, and electrical cables. Incoming water is salted with minerals—about 2,100 parts per million.

**U.S. Department of the Interior** is sponsoring such varied types of equipment as stills, compressors, solar furnaces, and evaporators. This concomitant research, while conducted in most instances by private companies or university laboratories, is supported by taxpayers' funds appropriated by Congress.

Declares J. B. Thomas, president of Texas Electric: "We're conducting our experiment for purely selfish reasons. We want to get more water for our cities and towns so they'll continue to grow, and thus increase our utility business. We took re-

search out of the laboratory and gave it to our ham-and-egg boys down here and told them to see what they could do."

Scientists have known for hundreds of years how to distill water on a small scale. Yet, big stills are costly to operate—and salty water corrodes pipes and boilers.

Natives of sea-girtled islands have learned to trap rain water in cisterns, but these scanty supplies are limited to the available storage capacity.

Many cities and towns across the country are plagued with brackish waters, unfit for use in industrial processes, and unpalatable for human consumption. Chief problem in every water-freshening system is the cost of the fuel or energy required for conversion.

**To get conversion costs down** to about 37 cents per 1,000 gallons for water for municipal purposes, and about 9 cents per 1,000 gallons for irrigation water, is a prime goal for all public utilities—and a goal which has promise for the air conditioning industry.

How do these cost estimates compare with the prices industries or cities are willing to pay for fresh water? Large users of irrigation water pay from one-half cent to about 12 cents a thousand gallons.

Obviously, it's far less costly to convert only mildly salted sea water for civic purposes than to reconstruct chemically heavily-salted sea water.

Industry pays around five cents a thousand gallons, and a few cities have paid nearly 30 cents a thousand gallons for undistributed raw water. (These costs in the continental United States.)

**Elsewhere, such as on arid islands,** on shipboard, at advance military bases, and for other special purposes, even higher costs are justified.

Sea water distillation plants should be a "MUST" on our scientific progress calendar. And especially are they needed for the progress of air conditioning.

If we try to take a balanced view of the whole world of science, instead of limiting our attention to areas where the Soviets have been concentrating their efforts, then we can see that the U. S. is far ahead of any other country and that England—not Russia—is in second place. One indication is that of the 36 Nobel Prize awards in science and medicine since 1950, one has gone to Russia, seven to England, 21 to America.

Air Conditioning & Refrigeration News, November 3, 1958

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### OFF THE CHEST

#### WE "ZEROED IN" WRONG ON THIS ONE

Minneapolis-Honeywell  
Regulator Co.  
Minneapolis 8, Minn.

Editor:

On page 17 [of the Sept. 22 NEWS] where you report on our new promotional programming boosting heating sales, in the very last paragraph you state that approximately 63,200 copies of our homeowner booklet "Practical Answers to Common Questions about Air Con-

ditioning" have been distributed.

You missed a very important zero. Actually, over 632,000 of these books have been distributed already. It is still going strong and we fully expect many more will be distributed before the program is completed.

R. M. LOCKE,  
Market Manager  
Residential Div.

#### DEALER WANTS NAME OF SCHOOL IN HIS AREA

Hagerstown, Md.

Editor:

I have been reading your current series of articles on education. Our problem is to find adequate service and technical schooling for our service mechanics in air conditioning and refrigeration. Our distributor does not offer any such training courses.

Would you be kind enough to send me the name of competent schools, within our area (a radius of approximately 150 miles), to which we could send our mechanics for short courses in the above mentioned items.

Any information you can furnish concerning the above will be appreciated.

ROBERT F. ZEIGLER

#### ALBERT REBEL FINDS IT A SMALL WORLD, INDEED

Recold International Corp.  
Los Angeles 27, Calif.

Editor:

I am very much interested in reading what Mr. Forani writes and I appreciate your publishing my letter. I agree with you 100% that a little controversy every now and then in the columns of a newspaper creates a great deal of interest and it certainly doesn't do any harm. Let me tell you frankly that I got an awful kick out of it.

You might be interested in knowing that just about a week ago, Hy Jarvis and I had dinner with some friends of friends in Denmark, Mr. and Mrs. Ove Hinrichsen. Again, to show what a small world we live in, the Hinrichsens are close friends of the Foranis, and their daughter has stayed for quite

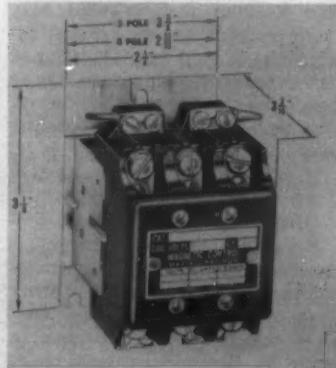
some time with Mr. and Mrs. Forani in Belgium and is a very good friend of Mr. Forani's daughter.

You might also be interested in knowing that I got a letter from Mr. Forani asking for information on RECOLD and I wrote him a nice letter and told him that I met his friends from Denmark.

Foreign trade work, of course, is extremely interesting. I have loved every bit of it—always with a few exceptions. . .

I know that in principle, you and I agree on the general foreign trade policy and if at any time something special comes up, I'll be delighted to write you a little note. My very best wishes and kindest regards.

ALBERT REBEL,  
President



## Arrow-Hart Offers New Controls Line

Production of a new line of 30 ampere starters and contactors specifically designed for controlling commercial air conditioning and refrigeration compressor motors has been announced by Arrow-Hart & Hegeman Electric Co., Dept. AC&RN, 103 Hawthorn St., Hartford 6, Conn.

Availability of these units makes it possible for Arrow-Hart to offer a complete line of motor controls for every requirement in the air conditioning and refrigeration industry, the company said.

Other controls in this Arrow-Hart air conditioning line include the 50 ampere starters and contactors. All of these controls "are designed for smaller size and greater compactness, straight-through wiring that eliminates looping and U-bending, rugged contacts, and extra wiring terminals for the convenient addition of pilot devices or other auxiliary equipment," it was stated.

More details on the products described on this page may be obtained by writing the manufacturer at the address given in each story.

## Dunham-Bush Develops Combination Condenser

Development of a new "BCW" unit—a combination air-cooled-water-cooled condenser—has been announced by Dunham-Bush, Inc., Dept. AC&RN, West Hartford 10, Conn.

Basic function of the unit is to operate as a normal air-cooled condenser up to a selected ambient temperature and to have its condenser capacity supplemented by the use of water above this temperature. Also, the water side condensing surface is designed to handle the complete condensing load in the event of failure of the air-cooled system.

Construction of the BCW units is the same as the BC remote air-cooled condensers, with the exception of the condenser coil. "Since all D-B air-cooled condenser coils utilize exclusive "Inner Fin" construction, the water circuit is provided by utilizing the inner tube used to support the innerfin," it was pointed out.

"Design of the unit makes it possible to retain the advantages of an air-cooled condenser, and to utilize smaller size condensers. Less space is required."

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## Redesigned Line of Radial Unit Coolers

The company is now manufacturing its redesigned line of radial unit coolers using heavy gauge hammered aluminum throughout, it was announced by McQuay, Inc., Dept. AC&RN, 1600 Broadway, N.E., Minneapolis 13.

This restyling affords longer life, greater ease of handling, and a more attractive appearance, the company said.

Eight redesigned models offer a range of 2,600 to 14,000 B.t.u.h. at 10° T.D. All have the McQuay "Ripple Fin" coil construction.

The radial unit coolers are also equipped with a newly-designed hinged drain pan.

## Typhoon Unit Features Square Look

New 1959 water-cooled self-contained air conditioners in 3, 5, 8, 10, and 15-ton capacities, "styled with the modern square look," have been introduced by Typhoon Air Conditioning Co., Div. of Hupp Corp., Dept. AC&RN, 505 Carroll St., Brooklyn 15.

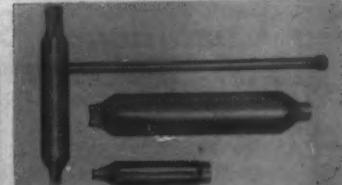
The units "are styled for installation in areas open to the public and in any decor," it was stated. "An expanded metal return air grille in the face of the cabinet covers a full 8 sq. ft. of area. This grille may be readily removed for easy servicing of the unit from the front."

"An exclusive feature permits introduction of return air through the back, or either side instead of through the front. If back, or side air return makes a better installation, the contractor simply replaces the front grille with a metal sheet."

The 3, 5, and 8-ton units measure 37 in. wide by 24½ in. deep and are 73½ in. high. The 10 and 15-ton models are 52 in. wide, 33

in. deep, and 83 in. high. Capacities are 37,000 B.t.u.h. for the 3-ton model, 60,600 B.t.u.h. for the 5-ton model, 97,500 B.t.u.h. for the 8-ton, 125,000 for the 10 ton, and 182,000 for the 15-ton model, the company said.

The 15-ton unit is available with a single 15-hp. compressor or with two 7½-hp. compressor units.



## Watsco Offers Variety For OEM Purchasers

A new process it has developed for manufacturing spun end strainers now gives OEM buyers a complete variety from which to choose, according to Watsco, Inc., Dept. AC&RN, 1020 E. 15th St., Hialeah, Fla.

"Recent expansion of facilities now permits complete stock on hand of all forms of strainers," it was stated.

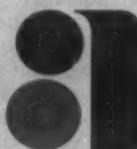
Two capillary tubes can be attached to tee-strainer shown. Flare fittings are also available. Watsco strainers "are sold at competitive prices whether stock on hand or made to specifications."

NEWS ITEM: A COMPLETE NEW LINE OF ANSUL PACKAGED REFRIGERANTS IS NOW AVAILABLE. YOUR ANSUL WHOLESALER HAS "FREON-12", "FREON-114", AND SULFUR DIOXIDE IN ONE POUND DISPOSABLE CANS AND "FREON-22" AND METHYL CHLORIDE IN TWO POUND CONTAINERS.



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## Air Conditioned Building Provides Parking Space on Each of 11 Floors

WASHINGTON, D. C. — A type building for Morris Cafritz and the Charles H. Tompkins Co. It will be occupied in January in the Universal building soon to be opened in the nation's capitol.

Tenants will be able to park their cars inside the 11-story office structure on the same floor on which they work.

According to Lynn B. Mighell, district sales manager of the Machinery & Systems Div. for Carrier Corp., "the interior garage brings a step closer the day when man will be able to drive to and from his office without experiencing a radical change in temperature and humidity."

Architect Roy L. Werner of consulting engineer, according to Washington, designed the block to the announcement.



All Havens' tower casings, from the largest to the smallest models, are double-dipped after fabrication and before assembly. 100 Ton "V" series water basin is shown above after removal from the galvanizing kettle.

### GALVANIZING THAT ADDS YEARS OF SERVICE LIFE TO

## Havens Towers

Rigorous service and field tests adequately prove that heavy zinc coatings provide protection against rust for many, many years. Havens' specialized galvanizing process utilizes acid dipping, zinc ammonium chloride pre-flux and unhurried hot dip. The dip kettle is 50 inches wide, 60 inches deep and 25 feet in length. A quarter of a million pounds of molten zinc are maintained at 840° F. Material being galvanized is left in the dip until temperature is equalized. Over 2 ounces of molten zinc are applied to every square foot exposed, equal to a thickness of .0036 inches.

From pickling and pre-fluxing, through the galvanizing, Havens' Tower casings are adequately prepared to combat rust and corrosion.



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MEMBER OF ARI COOLING TOWER SECTION

## Wholesalers See '58 as Good Year--

(Continued from Page 1)

he should cultivate business with heating firms who seek to get into year-round air conditioning.

On the bright side, half of those responding to the question "Is your volume this year better than in 1957?" said yes, and 25% said it was no worse. Predictions that business will be better in 1959 were made by 80% of those responding.

The newly-elected officers of ARW will probably take some action on some of the major problems brought to light at the meeting. Those who will guide the wholesalers' association for the coming year are:

#### Koopman Is President

President, C. G. Koopman, Supply Distributors Corp., Boston; vice president, W. C. Miesemer, Arizona Refrigeration Supplies, Phoenix; secretary, E. P. Sorensen, Airo Supply, Inc., Chicago; treasurer, E. H. Davey, Davey Sales Co., Akron, Ohio.

These officers, together with Past-President W. J. Hieber, Refrigerative Supply Inc., Portland, Ore., make up the executive committee.

Other directors are: Paul D. Bodwell, Jr., The Bodwell Co., Inc., Harrisburg, Pa.; Paul D. Cato, Texas Refrigeration Supply Co., Ft. Worth; E. S. Diggle, Henry V. Dick & Co., Columbia, S. C.; Boyd Evans, United Refrigeration Supply Co., Memphis.

The convention program also featured some additional presentations on wholesalers' problems by ARW members, in addition to some outside speakers.

#### Purchase Orders, Surplus

Jack L. Homan, Allied Supply Co., Inc., Dayton, described a simplified inventory control system, and a "one-sheet" order form to simplify purchasing. C. G. Koopman, incoming president of the group, also spoke on the need for better inventory control, and described the advantages to be gained in more frequent turnover of the wholesaler's stock.

A projected plan for the issuance of a consolidated wholesaler surplus capital equipment items bulletin was described by Stephen S. Babson, manager, Peerless Pacific Co., Refrigeration Div., Eugene, Ore.

The session devoted to the discussion of the wholesaler's problems with his suppliers and with his customers, and the manufacturer's viewpoint on how the wholesaler might improve his sales and handling of the manufacturers' products, apparently grew out of a similar session at a Region 5 meeting this past summer, at which Thom Muir, Refrigeration & Air Conditioning Business, Cleveland, presented the wholesaler part of the story, and R. L. Gibbs, sales manager, Mueller Brass Co., presented the manufacturer side of the story.

These same two men presented prepared discussions at the San Francisco convention, following which a panel composed of both wholesaler and manufacturer representatives took the platform to answer questions from the floor.

Based on a survey among ARW members, Muir pointed out that problems in delivery was voted by the wholesalers to be their most serious problem in dealing with their suppliers. Chief elements of this problem seem to be failure to deliver the goods at the time specified, and frequent errors in the kind and quantities of the items specified.

#### Problems of Delivery

Possible causes of the problem were thought to be poor sales and production forecasting by the manufacturer, poor inventory control by the wholesaler (with resulting short lead-time on orders to the manufacturer), and inadequate checking of clerical work.

The second and third most serious problems of the wholesaler in dealing with the manufacturer concerned policies and direct selling by the manufacturer, and were apparently tied in with one another by some wholesalers.

Generally, the charge about direct selling centers about alleged practices of manufacturers selling components to original equipment manufacturers on a preferential discount basis, and then having these components sold at retail by the manufacturer's distributors or field organization.

#### Seek Written Policy

On the matter of policy, what seems to be desired is a statement of policy (preferably in writing) just with whom the manufacturer will deal, and on what kind of discount schedule. Freight problems was the remaining "problem" mentioned by at least 10% of those answering, and it seems to be a matter of wanting the freight prepaid, and figured into the final selling price.

Fifty-six per cent of those who answered the survey questions said that suppliers' salesmen were not offered the type of assistance needed. Main reason for this inadequacy seems to be lack of information on the part of the salesmen, a failure to provide advice on product changes and price changes, and lack of assistance in merchandising the product.

There was some criticism of manufacturers' representatives handling multiple lines, to the effect that they sometimes fail to concentrate enough attention on a particular line.

#### New Competition Appears

To the question "Is there a trend for other than air conditioning and refrigeration supplies wholesalers to carry lines competitive to yours?" 73% said "yes" and of these 53% designated heating wholesalers as invading the field, and 47% pointed to plumbing wholesalers.

Of those responding in the survey, 59% said they handled a line of packaged air conditioning, but of these only 37% said it had been profitable. Forty per cent said they carried a line of furnaces, with 60% of these stating such an item had been profitable.

Asked "Have you solicited business from those plumbing

and heating dealers who may have gone into air conditioning?" 94% said yes. Questioned as to how their business broke down by the trades they serve, the replies of those responding averaged out as follows:

Refrigeration	61%
Air Conditioning	34%
Other	5%

Speaking for the manufacturers who supply the wholesalers, Gibbs began by stating that while his company supplied many other industries, in none of the others was there "close relationships, the good acquaintanceship, the knowing of your customers' families" that there was in the air conditioning and refrigeration industry. For this reason alone, there should be no real problem in communication, he stated.

#### As Mfr. Sees Wholesaler

What is the wholesaler's responsibility? Gibbs sees it as the selection of lines of established quality, backed by a record of service, with the wholesaler truly representing such manufacturers, and very importantly, maintaining adequate stocks.

In turn, the wholesaler should insist that he be contacted by a competent representative of the manufacturer, who can provide all pertinent information on the manufacturer's product, prices, and policies, and who can also train the wholesaler's employees in selling the manufacturer's products.

#### Promotion Material Often Wasted

One major complaint of the manufacturers is that most of them provide considerable sales promotion material, technical bulletins, and trade advertising, but often have the feeling that the wholesaler does nothing to take advantage of such assistance.

"Today even an envelope stuffer costs a nickel a copy, and we don't like to see them gathering dust on the wholesaler's shelves," Gibbs stated.

The manufacturer of components for the air conditioning and refrigeration field faces a problem today in that with people from so many different fields getting into air conditioning.

(Concluded on next page)

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## Should Wholesaler Sell Packaged Units?

(Concluded from preceding page)

tioning, there is pressure from outlets other than the established supplies wholesaler to handle the lines.

### Selling the Heating Man

"I've had a wholesaler ask me 'Can't we get together and set up some rules so that we will be sure to get all the business from the heating and cooling contractor?'

"Naturally we can't set up any rules, and the only way to get business from the new people coming into the field is to stock the things they need, employ the kind of personnel that can answer their questions and assist them in their problems, and who will render prompt and courteous service to such customers."

Do manufacturers think the wholesaler is making too much profit? To the contrary, said Gibbs, many manufacturers—sometimes confronted by credit problems in their dealings with wholesalers—are of the opinion that wholesalers aren't making enough profit.

### Better Forecasting Might Be Solution

One suggested answer to the problem of profits was better forecasting of probable sales volume by the individual wholesaler, to make possible more accurate budgeting of expenses and profits. If this is carried out, the wholesaler should be in better shape to take advantage of quantity prices and cash discounts, and thus improve his whole profit structure.

In the open discussion that followed, moderator E. H. Davey, Davey Sales Co., Akron, Ohio, together with a panel that included C. V. Gary, Henry Valve Co., and G. J. Boepple, Alco Valve Co., representing the manufacturers; and E. K. Peterson, Thermal Supply, Houston; and S. Nill Mohler, Jr., R. E. Thompson Co., St. Louis; and the speakers, answered questions and moderated a lively discussion from the floor.

### Debate Package Unit Sale

Occupying most of the discussion were the hotly debated points on whether or not the supplies wholesaler should function as a wholesaler of packaged, unitary air conditioners; and how much attention he is giving, and should give, the contractors from other fields who are getting into the air conditioning business.

I. S. Fairbanks, manager, air conditioning division of Fraser & Johnston Co., manufacturer of residential and commercial air conditioners, and heating equipment, started the ball rolling by describing his experi-

In the debate that followed, these points were made:

### The Wholesaler Viewpoint

Many supply wholesalers do not carry package equipment because they believe that in so doing they compete in some part with their customers (for many years association rules barred from membership any wholesaler who carried packaged, unitary equipment).

Wholesalers can't very well set up to render service on packaged goods, and the kind of credit—up to 180 days—extended on such units is not to the wholesaler's liking, since he is used to 90-day credit at the outside.

Surveys have indicated that in a great many instances package goods have not been profitable to the wholesaler. Most successful operations seem to have been in areas where the population is rather scattered.

As to selling the heating and

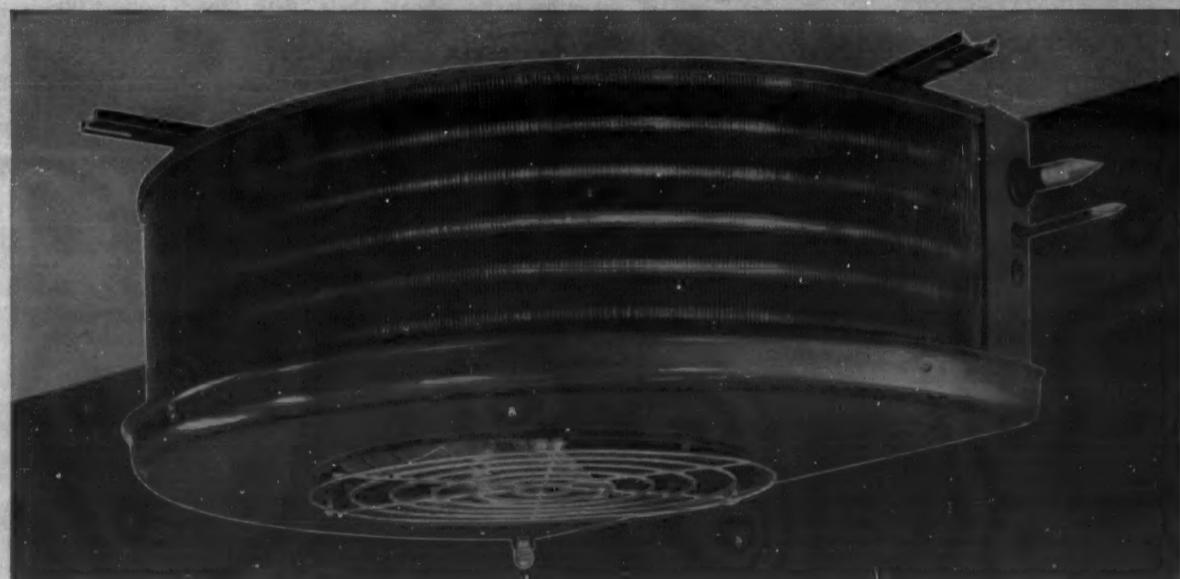
or plumbing contractor who is possibly a small charge, which can then be added onto the retail selling price of the item. The variation in freight charges by areas and other factors is a major problem in getting any uniformity into the charge.

The 5-year warranty, although not listed as a major problem by the wholesalers, is apparently a policy that is irksome to most of them, and in some instances can apparently prove costly. The charge was made that "no segment of the industry likes it," and that if there was enough concerted clamor against it, the major manufacturers of compressor units might abandon the long warranty.

### REPRINTS

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Larkin Half-Turret Humi-Temps are quality engineered to control temperature and humidity in applications above 35°F. Units mount flush to cooler wall and ceiling permitting maximum storage space.

Scientifically designed air diffuser assures uniform distribution of air, 100% usage of coil surface, more effective leaving air. Lip on drip pan

forces air up and out and prevents cold air from re-entering the evaporator.

It will pay you to investigate the advantages of the Larkin Half-Turret Humi-Temp—another quality refrigeration product with traditionally fine engineering and workmanship.

See your wholesaler or write for Bulletin 1049B.

### BASIC RATINGS

Model	Capacity Rating Btu/hr @ 10° TD F	Total Surf. Area	Cfm
HT-25	2500	74	500
HT-35	3500	85	700
HT-45	4500	107	900
HT-54	5400	154	880
HT-68	6800	189	1120
HT-87	8700	228	1400
HT-106	10600	296	1850

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## Report on Education

Another article in a series dealing with all levels of education and training in the air conditioning and refrigeration industry.

By Frank J. Versagi, Technical Editor

### 6. Manufacturers' Schools (Concluded)

Most often, manufacturers' schools are held at the main plant, and they run a week. They have the advantages of taking the student away from his work-a-day pressures and problems and allowing him to think only of studying for a specific length of time. Then, too, it is a simple matter for the manufacturer to supply extensive and expensive equipment on the spot.

#### Student Expenses Handled Differently

Companies vary in handling the student/customers' non-school activities and expenses. A few leave all expenses up to the student, allowing him to make his own arrangements for meals and lodging. Most permit students to eat lunch at the company cafeteria; some pay for the lunches, others let the student pay.

Lodging is most often left to the student, although most companies will recommend specific motels or hotels near the plant, and a few will arrange with the hotel management for lower rates for the students.

Several companies take the students out for a banquet

sometime during the week.

None of the companies covered by the NEWS required students to pay for texts or classroom material, although there was great diversity in simple things like scratch pads to notebooks given for note taking. Students seemed to like best note-paper which fit in with the literature they were given; looseleaf suffered from the familiar difficulty in writing on the left-hand pages (for right-handers); spiral binders which could be laid flat got the highest vote.

Actual fee for the course runs from \$15 to \$30—a nominal fee when expenses incurred by the company are considered.

#### A Few Firms Have Several Centers

A very few companies have established training centers at several locations about the country. These are school rooms, as fully equipped as factory schools, and staffed with full-time instructors. Their courses also usually run a week, although they have quickie clinic-type sessions occasionally.

A disadvantage of the factory or training center school is

that geographic distance and traveling and living expenses prohibit extensive attendance. We have already pointed out that the highest estimate we received for attendance at a factory school was 20% of those servicing the manufacturer's units; 5% is more like an average.

#### Disadvantages of Field Schools

To overcome this, some manufacturers hold field schools in certain key areas. Normally, such field schools last only a couple days, sometimes only a day. Equipment is naturally not as extensive as at the main plant and, to that degree, the value of the short course is lessened.

Then there is the human element. The students are still close to their work. It is not unusual for them to accept service calls while they are in class or to come in late because of the natural feeling of priority for their business.

There is no clear cut picture of the effectiveness of these field schools. Companies have tried them and have dropped them because they were considered ineffective. Others consider them ineffective, but conduct them anyway. A few are enthusiastic about their field schools.

This mixed feeling is shared by the people who have attended the field schools. While the majority of students interviewed by the NEWS rate the field schools ineffective, a significant minority praise them enthusiastically.

In general, it seems that field schools partially serve a function which is as yet served in no other way.

#### Schedule for Week-Long School

A typical week-long manufacturer's school begins with a day or day-and-a-half review of fundamentals; the refrigeration cycle, air handling, electricity, controls—whatever is pertinent to the actual service work which follows. Even in "application" courses, where no actual service work is done, the course begins with a review of this type.

Then the students are given shop work on actual units and they spend two or two-and-a-half days working with equipment and tools or working on application problems. (We'll discuss later the several ways of handling groups in shop.) Then a final half day or so of review and summing up.

Within this general outline, of course, are used diverse techniques and equipment, several kinds of teachers, different

texts or no texts, homework or no, all of which add up to make a course effective or not in the student's mind. Some schools use tests, others do not.

"And this isn't just educational theory; we see the fruits of such shortsightedness every day in large companies."

In spite of such defects, manufacturers' schools of all types are invaluable in keeping servicemen, salesmen, and contractors abreast of new products and techniques. Without exception, instructors and management at those schools attended and contacted by the NEWS are interested in how their school compares with other manufacturers'; how their techniques and classrooms and equipment match others in quantity and quality; what student reaction is to their schools.

As this series progresses, these people as well as those in other fields of education will have the opportunity of evaluating their own performance against others with reference to these various phases of education and training.

Considered by many to be the most important contribution of industry to education is manufacturer's literature. The various technical bulletins and instruction sheets issued by manufacturers contain a wealth of basic and practical information. All major schools teaching air conditioning and refrigeration use much of this company literature.

Companies complain, however, that servicemen are guilty of not bothering to read the instructional material made available to them.

#### Educational Talks

Companies supply speakers and educational programs for trade association meetings. Like their factory schools, these presentations vary from very effective to quite poor.

Again, the most universal criticism of these programs is their tendency to be sales pitches, not educational talks.

"It's one thing to use your product in a demonstration of basic principles or application. It's another thing entirely to spend all the time telling how wonderful the product is," sums up this complaint.

Finally, and unevenly, companies offer scholarships or direct aid to individuals or schools, but in this respect the cooling industry lags behind other fields.

## Edwards Airvec Supplies 10 Tons of Air Conditioning To New Florida Supermarket\*

EDWARDS Airvec Condenser Utilizes Convection Principle. Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and 7½ ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept., Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.



Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

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- COST REDUCED 30% to 40%
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\*Daylight Grocery Co., 1003 Florida Avenue, Jacksonville, Florida

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## Air Distribution Requirements In Year-Round Air Conditioning

### Part 3—Fundamentals of Equipment

By Frank D. Klein, Chief Engineer, Govenair Corp.

#### MODERN OPEN-TYPE RECIPROCATING COMPRESSOR

Present-day open-type reciprocating compressors have the following general characteristics:

Compressors are adaptable to either belt drive at slower speeds or direct drive to higher speeds, not in excess of 1,750 r.p.m., although there are some compressors of this type on the market recommended for speeds through 2,350 r.p.m.

They usually have integrally built-in capacity control mechanisms, within the compressor itself—not actuated externally, except in cases of integration into the remote electrical or pressure general control system. In this case the actuating mechanism becomes a part of the integral compressor control.

Integral suction and discharge stop valves are machined and assembled to micro-tolerances. integral compressor design (see

Cylinder sleeves are honed and polished to close tolerances after precision machining, and preferably should be of the replaceable type for alternate renewal.

Main and crank-pin bearings are precision machined and polished and equipped with precision tin-lead or tin babbitt type inserts. Bearings should be manufactured on an interchangeable basis for renewal.

Cylinder heads, suction, and discharge manifolds should be generously sized to permit free passage and quiet operation, without internal velocity restriction.

Suction and discharge valves should preferably be of the ring type and manufactured from special steels having high tensile and ductility characteristics without sacrifice of surface hardness. The rings should be machined and have large bearing areas and be assembled to micro-tolerances.

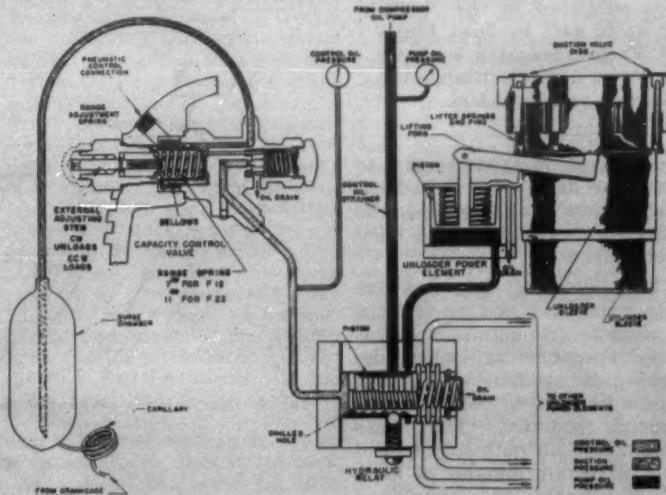


FIG. 48—Capacity control device actuated by the pressure in the suction line. Complete operation can be seen by tracing diagram.

sors have a built-in safety valve, in order to by-pass discharge gases back to the suction line side of the compressor when differentials exceed the setting selected.

The return of oil to the crankcase and limitation of the amount of oil loss from the crankcase are prime requisites in modern compressors.

Provision is often made for a crankcase heater.

(To Be Continued)

### Marketing Clinics Discuss Du Pont's Cooling Surveys

WILMINGTON, Del. — Air conditioning contractors and dealers in 20 major metropolitan areas of the nation will be guests of the du Pont Co.'s "Freon" Products Div. at a series of marketing clinics.

Scheduled for discussion at the meetings are recent market surveys conducted by du Pont in the commercial and industrial air conditioning field, technical service provided by du Pont, and business helps available through air conditioning and refrigeration wholesalers, according to the announcement.

Kickoff meeting was held in Philadelphia, Oct. 7, with other sessions being scheduled in Baltimore, Newark, N. J., New York City, Buffalo, Cleveland, Detroit, San Francisco, Los Angeles, Phoenix, Dallas, Kansas City, St. Louis, Louisville, Minneapolis, Chicago, Washington, Atlanta, Miami, and Boston, it was pointed out.

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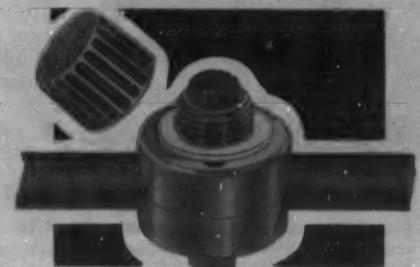
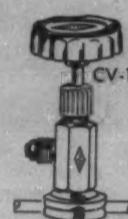
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## EVAPORATIVE CONDENSERS (Part 3-Refrigeration Piping)

Some years ago Baltimore Aircoil Co., Inc. prepared a manual on evaporative condensers, covering all phases of the subject from theory of operation to installation and service practices, and most of it was published in the News. Recently the manual was brought up to date by John Engleitcheff, president, and Thomas F. Facius, research engineer of Baltimore Aircoil Co., and the News again publishes the major parts of the manual as a service to its readers.

One of the most important considerations in laying out a refrigeration system is to adequately size the pipes. ASRE tables recommend the correct pipe sizes for Refrigerant-12 and Ammonia systems:

**NOTE:** The liquid line from the condenser to the receiver is always larger than the liquid line to the evaporator. This is to prevent gas binding and liquid back-up in the condenser.

In the liquid line from the condenser to the receiver, the liquid drip valve should be located in a vertical section of

the line. If it is necessary to place the drip valve in a horizontal section of the pipe, the valve stem should be in a horizontal plane.

The following diagrams are only schematic, and no attempt is made to give details or exactness. Consequently, when designing a system, the piping should be sized to the best commercial practice. The lines should be laid out so they will have a certain amount of flexibility between the component parts of the system, allowing for vibration, expansion, and contraction. Never lay out piping so it is completely rigid.

### Case 1

Fig. 9 indicates the recommended piping hook-up for one or more compressors discharging into a common evaporative condenser. All B.A.C. Evaporative Condenser Coils are provided with an equalizing connection. An equalizing line should be connected between this point and the receiver to prevent any gas binding in the receiver.

If the equalizing line is not connected in the original installation, valves should be installed at the condenser and on the receiver. Should "gas binding" of the receiver occur, the equalizing connection can be installed without breaking into the system.

**NOTE:** The equalizing connection on the unit is used only for single evaporative condenser installations. When the liquid line to the receiver is trapped, as in Case II and III, do not use the coil equalizing connection.

### Case 2

In Fig. 10A (Standard arrangement), vertical liquid legs are necessary to neutralize the difference in pressure that may occur at the coil outlets. This difference in pressure generally results from unequal sized condensers, variations in piping, or variable load conditions imposed on the separate condensers.

If some precautions are not taken, the difference in pressure will force liquid up into the

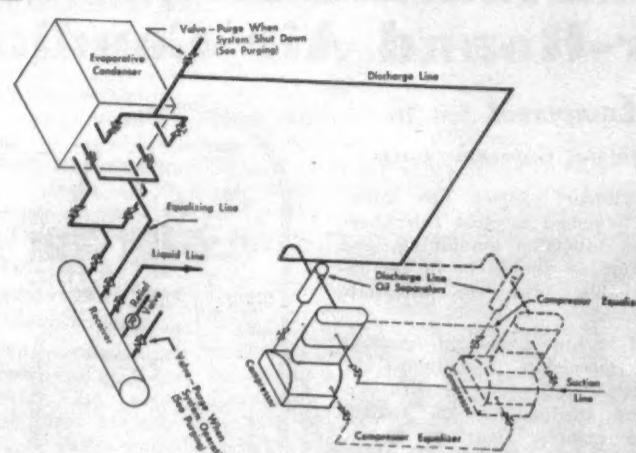


FIG. 9—Case I: Single evaporative condenser with one or more compressors.

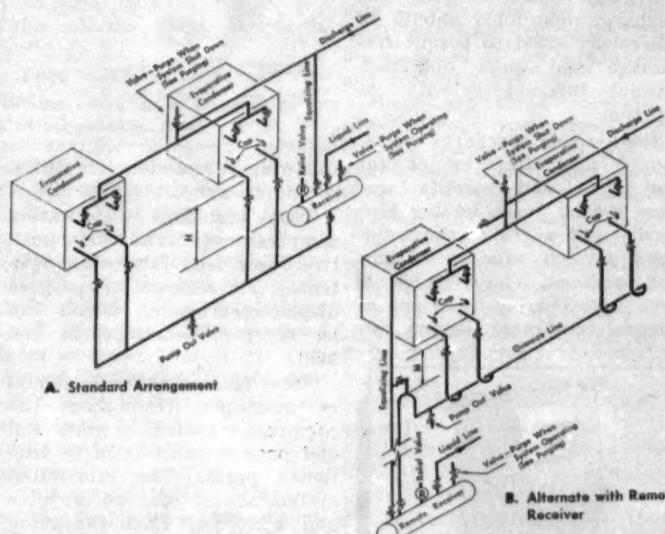


FIG. 10—Case II: Paralleling evaporative condensers (any size) with one or more compressors.

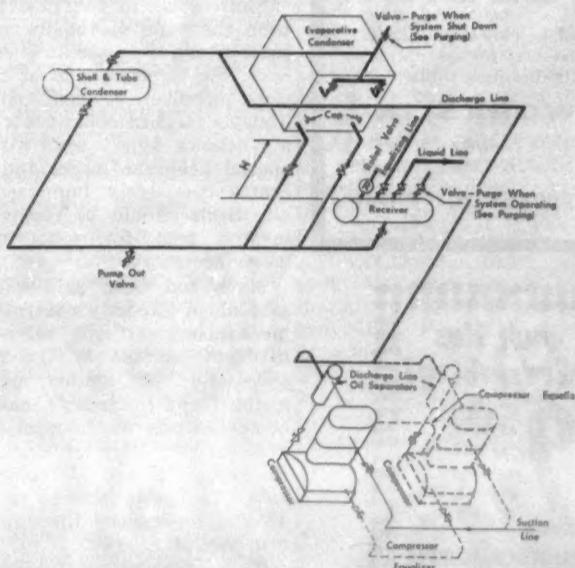


FIG. 11—Case III: Paralleling an evaporative condenser and a shell and tube condenser with one or more compressors.

coil having the highest pressure drop, resulting in high head pressure and erratic operation.

The height of vertical liquid leg, H, should be a minimum of 6 ft. for Refrigerant-12 or 22, and 3 ft. for ammonia. This height of liquid leg allows for the pressure drop through B.A.C. condensers and the pressure drop in the piping from the point where the equalizer line is connected (assuming the line pressure drop is not excessive).

The pressure in the receiver is then the same as the discharge line pressure and any pressure drop in the condenser and piping is balanced by the column of liquid, H.

**NOTE:** The equalizing line is connected between the receiver and hot gas discharge line. DO NOT USE THE COIL EQUALIZING LINE FOR THIS APPLICATION.

Fig. 10B illustrates an alternate piping arrangement where only a single liquid line can be run to the receiver because of its remote location on a lower level. Vertical liquid legs are necessary, the same as in Arrangement "A," but they are joined into a common line, oversized approximately two sizes. This oversized line provides a liquid reservoir which prevents the liquid seal from being broken. In addition, the high point of the oversized line is connected to the equalizing line

to prevent a siphoning effect from the reservoir to the receiver.

### Case 3

On some existing installations, it may be advantageous to operate an evaporative condenser in conjunction with an existing shell and tube condenser. This may be due to one or more of the following reasons: increased water and/or sewerage costs; ordinances that require the use of some form of water-saving equipment; or the need for additional capacity. When the condition of the existing shell and tube condenser does not warrant its discard, it is usually advantageous to select an evaporative condenser to handle the normal operating load. The shell and tube condenser acts as a "stand-by" to handle any maximum or peak loads over and above the normal operating load.

Fig. 11 shows the proper way to parallel an evaporative condenser with a shell and tube condenser. The evaporative condenser must be located so that there is enough space to provide minimum vertical height, H. See Case II for explanation of vertical liquid leg.

### Starting and Checking The System

Prior to charging the system, it should be pressure tested for leaks in the conventional manner. Then, evacuate the system and observe it for a 24-hour period. If no appreciable change in pressure is noted, the system may be charged.

Pump-down the system slightly, enough to assure that if any non-condensables are present they are pumped over to the high side. Immediately after pump-down, close the discharge valve on the compressor. Operate the evaporative condenser for at least 2 hours or until the water temperature in the sump pan is the same as the entering w.b. temperature. The temperature corresponding to the pressure in the evaporative condenser and connecting lines should correspond, or nearly so, to the w.b. temperature of the entering air. If the resultant temperature is higher than the w.b. temperature by more than 2°, then the system has an excessive amount of non-condensables. Purge the system from the highest point by bleeding the non-condensables slowly through the purge valve. It may require several purges before the system is free of non-condensables.

If it is desired to purge the system during operation, use the purge valve on the receiver. Also, if an automatic purger is used, it should be connected at this point.

(The End)

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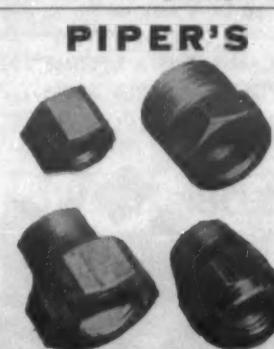
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## Refrigeration Problems And Their Solution (As Written by Paul Reed)

### Reserve for 'Free Service'

Manufacturers have elaborate cost accounting systems. They can determine at any time what their profit and loss picture is without waiting until the end of the year. They know how much each part of each model costs, and whether that cost is more or less this month than last month. Every variation in cost of material, in wage scale, or in production efficiency shows up in the cost analysis of each tiny part.

"But," we hear, "it is different in the field. There we have variables. It is impossible to accurately predict just how much each individual installation is going to cost. We run into unexpected troubles. Some of these unexpected troubles are sometimes so big that they wipe out the entire profit on an installation, and more besides; so we lose money on that job. The manufacturer doesn't have that problem; he gets the same amount of money for his product, regardless of how much trouble we have and whether we make or lose money."

#### WARRANTY RESERVE

The manufacturer has his troubles, too, porous castings, off-grade steel, inferior quality, and discharge and suction valve leaks.

Whatever the cause, if he puts out a bad batch of equipment, complaints from his dealers multiply, returns of defective machines pile up in his receiving department, his replacement costs soar. Does he have to dig down into his profits for the money to pay these extraordinary costs? Not he; he is prepared for such possibilities. The replacement costs come out of his Warranty Reserve.

Out of the selling price of each unit, he sets aside a small amount for the Warranty Reserve.

The amount put into the Warranty Reserve may be as low as a fraction of 1% of the selling price, or for some types of product and under particularly adverse conditions, it might amount to several per cent.

Out of this reserve is paid the cost of all free replacements under the terms of his warranty, and only for the length of time that the warranty covers free replacements. In the refrigeration industry, the warranty period is customarily one year.

This separate fund is not used for anything else. Suppose, for example, a unit comes back for free replacement as defective, but his examination shows that it was abused, operated without proper oiling, for instance. Ordinarily, the dealer would be charged for the replacement.

However, there might be certain extenuating circumstances. Perhaps the dealer had just been through a lot of defective machines that had been expensive to him, and was still sore about it. So it might be good policy to replace the unit at no charge to the dealer, even though it was the fault of the dealer or the user. The cost of that replacement would not be charged against the Warranty Reserve, but instead, it would be charged against Sales as a matter of good policy.

The Warranty Reserve is the manufacturer's cushion to absorb the sudden shocks of unexpected and temporarily excessive replacement costs. Moreover, it enables the manufacturer to know how much his warranty replacement costs are running.

#### FREE SERVICE RESERVE

The dealer has an almost identical problem. When he sells a piece of equipment, he promises his customer that he will service the equipment without cost to the customer for a certain period of time, called the Free Service Period, which may be 90 days, up to, but rarely more than one year.

During the Free Service Period, defective parts are supplied by the manufacturer without charge under his warranty. The dealer assumes the labor and incidental costs, including transportation, that may be required to actually replace the "free" parts and to make what adjustments may be at some loss to know just how

required to give satisfaction.

Just as the manufacturer has a Warranty Reserve, the dealer should have a Free Service Reserve. A certain per cent of the selling price of every installation should go into the Free Service Reserve, and all costs of giving the customer free service should be charged against that reserve.

How large the percentage of the selling price that is put into the Free Service Reserve depends upon past experience as to how much costs of free service have been running, and upon the dealer's judgment as to whether future free service may be expected to be higher or lower.

Expected increases in labor rates or in refrigerants and other material, may require an increase in the percentage of the Selling Price that is set aside to go into the Free Service Reserve. On the other hand, the dealer may feel justified in reducing the percentage if he feels that he is apt to have less trouble than in the past. If a dealer has never set up a Free Service Reserve, he may be

much to start with. Nevertheless, he should make a start, even though the percentage may prove to be inadequate or too much.

Within a few months, or at most a year, he will see how near his Free Service Reserve is to covering his free service costs, or if it is much too large. Then he can increase or reduce the percentage accordingly.

Let us say that he starts with 5%. If, before the end of the year, his Free Service Reserve is used up, he knows that his free service is costing him more than 5% of his net sales, and he must either increase the percentage to the reserve or take some steps to reduce his free service costs.

At any rate, he has a means of knowing how much free service is costing him, and if he has not been making as much profit as he thinks he should, perhaps excessive free service costs may be partly responsible.

He, like the manufacturer, has a cushion to absorb the shock of excessive free service cost on one or two installations.

On most installations, the

amount set aside for free service should be much greater than is necessary. On a few installations, he may lose the charge of refrigerant or some part of the equipment may prove defective, and it may have to be replaced. His free service costs on those few jobs may eat up the amount set aside from 20 installations that give little or no trouble.

If his Free Service Reserve stays "in the black," that is, if it covers the free service costs, he is relieved of the shock of losing all of the profit, and perhaps more, from a nice job because of excessive cost of service on that one.

Free service costs only should be charged against the Free Service Reserve, not "gifts" or special services to the customer not included in free service. Costs of these "policy" services should be charged to sales, not to service.

A further advantage of the Free Service Reserve is that it simplifies the preparation and filing of your income tax return. Free service is a deductible cost, and should be kept separate from the profit picture.

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This new, dry-acid formulation is packed in 10 and 50-lb. drums. Just empty into the water, stir into solution and it goes to work at once. Equally safe for galvanized, dipped zinc and aluminum water-cooled equipment, "Virginia" Solid Scale Remover offers the added advantage of destroying algae growth.



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## NAPRE Convenes On Miami Beach

CHICAGO—"Supervision and Training—The Chief Engineer's Responsibility" is the theme of the 49th annual meeting of the National Association of Practical Refrigerating Engineers to be held Nov. 11 to 13 in the Kenilworth House, Miami Beach, Fla.

Six educational sessions and two business meetings plus tours of the Velda Corp. plant and the Kenilworth House heat pump are scheduled for the three-day conclave.

Program follows:

### TUESDAY, NOV. 11

9:30 a.m.—First business session. Frank L. Chase, president, presiding. 10:30 a.m.—First educational session: erection and installation.

"Pay Attention to the Details"—Wallace M. Smith, General Chemical Div., Allied Chemical Corp.

2:30 p.m.—Second educational session: operating procedures.

"Dependable Diesel Power for Mechanically Refrigerated Cars"—M. E. Nicklin, Witte Engine Works, Oil Well Supply Div.

3:30 p.m.—"Correct Purging Points"—T. H. Rea, Armstrong Machine Works.

4:15 p.m.—"Purging with a Purpose"—D. D. Wile, Recold Corp.

### WEDNESDAY, NOV. 12

9 a.m.—Third educational session: plant applications.

Tour of Velda Corp. plant. Host—Hugh Miller, chief engineer. Demonstrating special features—George Wachter, vice president, FES.

12:30 p.m.—Luncheon, Roy Burns, vice president, presiding.

1:30 p.m.—Fourth educational session: supervision.

"Boss' Expectations of Modern Refrigerating Engineer"—Prof. W. R. Woolrich, University of Texas.

"Supervision and Training—Emphasis on Maintenance"—Daniel M. Roop, Baptist Memorial Hospital, Memphis, Tenn.

"Speaking of Safety"—John Herzog, chief engineer, Burgermeister Brewing Co., San Francisco.

Special event: Tour of Kenilworth House heat pump. R. S. Lafferty, Hill-York Corp., Miami, and Erich B. Utescher, supervising chief engineer, Kirby hotels.

6 p.m.—Plant Inspection, Royal Castle Systems, Inc.

### THURSDAY, NOV. 13

9 a.m.—Fifth educational session: operating.

"What Practical Man Should Know about Air Handling"—Guy R. King, instructor, Santa Monica City college.

1:30 p.m.—Final business session.

3 p.m.—Sixth educational session: maintenance.

"Safe Solvents for Electric Motor Maintenance"—John H. Dowling, Fluoro Solvents & Chemicals, E. I. du Pont de Nemours & Co., Inc.

6:30 p.m.—Annual officers reception.

7:30 p.m.—Annual dinner and installation of officers.

## G-E Theme--

(Concluded from Page 1, Col. 4) customers they must be sold up from poor quality products, and sold on the necessity of a good application, a good installation, and the need for good service on their equipment.

It will also be of prime importance that those retailing air conditioning equipment sell themselves on the wisdom of making first rate installations, and learning how to sell this to the prospect to create true customer satisfaction.

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## RSES Program--

(Concluded from Page 1, Col. 2)  
Convention program follows:

### THURSDAY, NOV. 20

9 a.m.—Board of Directors meeting.

### FRIDAY, NOV. 21

9 a.m.—Registration, Mezzanine.

1 p.m.—Convention call to order.

Invocation.

Introduction of International Officers.

Greetings from Air-Conditioning & Refrigeration Institute.

Greetings from Air Conditioning & Refrigeration Wholesalers.

International President's address—Albert E. Manning.

International Secretary's report—H. T. McDermott.

International Treasurer's report—Charles G. Bell.

Reports of International Committees.

Appointment of Convention Committees.

4 p.m.—"Vingt et Un"—A. Starr Hull, executive secretary, ARW.

5 p.m.—Adjournment.

6 p.m.—Manufacturers Service Managers Club dinner meeting.

### SATURDAY, NOV. 22

9 a.m.—Information Please. Question and answer period.

10 a.m.—"Trends Toward Use of Higher Voltages"—Albert S. Anderson, Ebasco Services, Inc., New York City.

11 a.m.—"Maintenance Contracts"—George T. Sutphin, president and general manager, Kelnard Service, Inc., Long Island City, N. Y.

2 p.m.—"Methyl Alcohol"—Dr. Walter O. Walker, dean, Div. of Research and Industry, University of Miami, and consultant, General Chemical Div., Allied Chemical Corp., New York City.

3 p.m.—"Estimating Air Conditioning Heat Loads"—Ralph A. Gonzales, director of technical services, Airtemp Div., Chrysler Corp.

4 p.m.—"Training Service Personnel"—Charles G. Bell, president, Bell & Hughes, Freano, Calif.

5 p.m.—Adjournment.

7 p.m.—Dance and Smorgasbord.

### SUNDAY, NOV. 23

9 a.m.—Information Please.

10 a.m.—Concluding Business Session.

2 p.m.—"Introduction of the Air Conditioning Serviceman to Heating Equipment Problems Associated with Combination Systems"—Robert F. Mees, supervisor, Technical Training, Surface Combustion Corp., Columbus, Ohio.

3 p.m.—"The Serviceman"—E. C. Hamilton, general service manager, Air Conditioning & Refrigeration Div., Worthington Corp., East Orange, N. J.

4 p.m.—"Machine Room Design for Air-Cooled Condensing Units"—Al Hinkley, educational director, Tyler Refrigeration Corp., Niles, Mich.

5 p.m.—Adjournment.

7 p.m.—Annual RSES Banquet and Entertainment.

### MONDAY, NOV. 24

9:30 a.m.—Information Please.

11 a.m.—"Safety"—R. D. Hollingsworth, international safety chairman, RSES.

12 Noon—Adjournment.

1:30 p.m.—Board of Directors meeting.

## Kreissl--

(Concluded from Page 1, Col. 5)

department. He was with the Armed Forces from 1942-1945 and upon discharge rejoined the company in the Chicago office. Next step was the managership of the Cleveland regional office. In 1954 he came to the Detroit headquarters as manager of appliance controls sales.

Earlier this year he was named marketing planning manager and was subsequently promoted to general manager of sales and marketing.

## Serfass--

(Concluded from Page 1, Col. 2)

Borg-Warner Corp., Serfass was appointed vice president and director of operations for the York Div., the position he held until his present assignment. He was graduated from Lehigh University in 1932 with a Bachelor of Science degree.

Henderson, who joined Westinghouse in 1941, has been manager of the company's air conditioning division at Staunton, Va., since 1955. In his new capacity, he will be assigned to company headquarters.



CONTINUOUS FLOW of carefully controlled cool air is the secret of the new Westinghouse refrigerator's 10-lb. meat keeper in which unfrozen meats can be stored safely for seven days. Other features are a new silent compressor and motor which operate quietly. Concealed "automobile type" door hinges permit the door to open within the width of the cabinet.

## Compressor, 'Nearly Silent'

## Westinghouse 'Frost Free' Refrigerators For '59 Will Keep Meat for 7 Days

COLUMBUS, Ohio—A special to 190 lbs. There also is a compartment said to keep meat third two-door model which has fresh safely for seven days without freezing and a "nearly silent" compressor and concealed auto-type door hinges are top features of the 1959 line of "Frost Free" refrigerators, it was announced by Westinghouse

A new egg drawer in one model fits right beneath the meat keeper, holds two dozen, and slides open to cut down on accidental breakage.

Styled in the "Shape of Tomorrow" motif, top models also have the high speed cold injector system introduced a year ago.

The new models offer optional color in up to 35 different possible combinations. In addition to the basic cabinet colors of white, mint aqua, lemon yellow, frosting pink, and copper tan, there are optional color panels that can be affixed to the refrigerator doors.

"The new meat keeper holds 10 lbs. at the ideal temperature and humidity under a continuous flow of fresh, refrigerated air from the cold injector, without freezing," according to the company.

"The top models have no exposed coils on the back and they can be installed either as free-standing or built-in models," it was stated. "Since no air space is required at the back, top, or sides, they can be pushed flat against the wall and side cabinets.

"Designed by Westinghouse engineers at the Columbus, Ohio plant, the new compressor is almost noiseless. The silence was achieved, deadening all sound when the motor is operating, by bubbling the refrigerating gas through oil as the refrigerator moves into the compressor to be compressed into a cold liquid.

"The same engineers designed the new concealed door hinges. They operate on a pivot principle like that of automobile doors.

"All doors can be opened to a full 90° within the width of the cabinet. This means any of the new Westinghouse refrigerators can be installed new to a wall and yet be completely accessible."

Two models are two-door types which feature the freezer section on the bottom with frozen food storage from 161

grid construction which lets the cold air circulate freely and keeps packages from sticking since less of any package is actually in contact with the shelf, it was pointed out. This feature, according to Westinghouse, means that any compartment of the freezer is a quick-freeze section.

The four upright models are the UM-18, the UM-14, the UM-12, and the UM-8. The chest models and their capacities are: CM-20 and CSM-20, 700 lbs.; CM-15 and CSM-15, 525 lbs.; and CSK-10, 346 lbs.

## Tennessee Contractors To Meet April 16-18

FOUNTAIN CITY, Tenn.—The 62nd annual convention of the Associated Plumbing, Heating & Mechanical Contractors of Tennessee will be held April 16-18 at the New Southern hotel, Jackson, Tenn., it was announced here.

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## WHAT . . WHEN . . WHERE

National Electrical Manufacturers Association Meeting Nov. 10-14, Traymore hotel, Atlantic City, N. J.  
 National Association of Practical Refrigerating Engineers Meeting Nov. 11-13, Kenilworth hotel, Miami Beach, Fla.  
 Better Heating-Cooling Council Meeting Nov. 17-19, New York City.  
 National Commercial Refrigerator Sales Association Convention Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.  
 Refrigeration Service Engineers Annual Convention Nov. 21-24, Neil House, Columbus, Ohio.  
 American Society of Refrigerating Engineers Meeting Dec. 1-3, Roosevelt hotel, New Orleans.  
 National Warm Air Heating & Air Conditioning Association Convention Dec. 4-5, Statler Hilton, Cleveland.  
 Dairy Industries Exposition Dec. 8-13, Navy Pier, Chicago.  
 International Heating & Air Conditioning Exposition Jan. 26-29, Convention Hall, Philadelphia.

## Paul B. Pew, Linde Executive Vice Pres., Dies of Lung Cancer

NEW YORK CITY—Paul B. Pew, 60, executive vice president of Linde Co., division of Union Carbide Corp., died recently in Doctors hospital of lung cancer.

With the company for 35 years, he was in charge of its sales, production, and research activities.

During World War II, he was one of several Linde executives brought into the Manhattan District project, which developed the atomic bomb. Earlier at Linde, he had been one of the developers of a process for producing and distributing oxygen in liquid form.

He is survived by his widow, Florence, and two sons, John M. Pew and Richard W. Pew.

## Servicing Automobile Air Conditioners

(Vol. 3)

BY C. DALE MERICLE

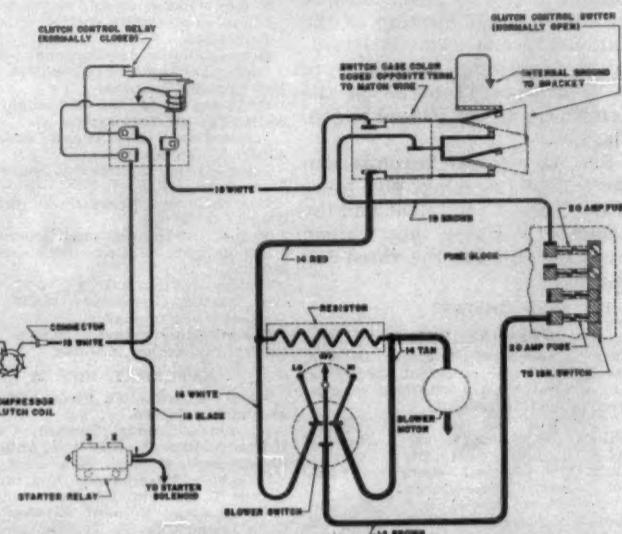
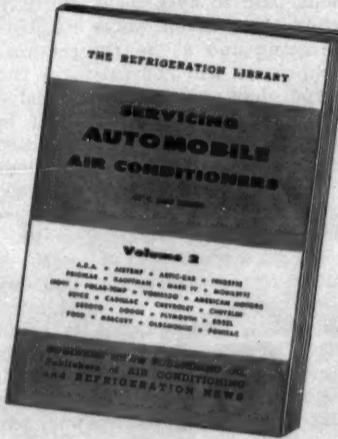


FIG. 1—Wiring diagram of 1958 Buick air conditioners.

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tion pressures and air outlet temperatures may run lower than shown in the accompanying table; on extremely humid days they may run higher.

If the suction pressure is not correct for the indicated ambient temperature, the hot gas by-pass valve should be adjusted.

Some systems which pass Test No. 1 may not give satisfactory performance on the road. These jobs should then be put through Test No. 2 where the engine speed is adjusted to ambient temperature and humidity conditions.

The "Cool-Pack" under-dash system was also available for installation on 1958 Buicks. The Buick Cool-Pack system is identical in all important respects with the 1958 Chevrolet Cool-Pack unit, so the same service instructions will apply to both. Readers are referred, therefore, to the chapter on Chevrolet for data on the 1958 Cool-Pack system.

Another change in service procedures on the 1958 Buick built-in system involves the functional tests used to determine if operating temperatures and pressures are correct.

Two tests are listed for 1958 systems.

In both tests the car doors and hood are open, the blower is set at high speed, the gauge set is connected, the heater valve is off, the air conditioner is turned on, and the cold control is set at maximum cooling position.

In Test No. 1 the car engine is operated at 1,600 r.p.m.

On extremely dry days suc-

Right  
Air  
Outlet  
Temp.  
("F.)

Ambient ("F.)	Suction Pressure (p.s.i.g.)	Head Pressure (p.s.i.g.)	Right Air Outlet Temp. ("F.)
70	22-25	110-150	40-46
80	22-25	140-215	42-49
90	22-25	185-265	43-52
100	22-25	220-285	45-55
110	24-26	260-310	52-56

### Test No. 2 for 1958 Buicks

Ambient ("F.)	Humidity	Engine Speed (r.p.m.)	Suction Pressure (p.s.i.g.)	Head Pressure (p.s.i.g.)	Right Air Outlet Temp. ("F.)
80	Normal to Dry	500-550	34	130-180	48
80	Humid	750-800	33	160-185	52
90	Dry	600-650	34	180-205	51
90	Humid	1,350-1,400	28	235-265	54
100	Dry	1,050-1,100	31	240-275	52
100	Humid	1,250-1,300	30	250-285	58
110	Dry	1,275-1,325	30	260-310	56
110	Humid	1,300-1,350	30	260-310	59



## I-B-R Announces Expanded Schedule For 1959 Heating, Cooling Schools

NEW YORK CITY—An expanded schedule of I-B-R heating and cooling schools for 1959 was released recently by the Institute of Boiler & Radiator Mfrs., revealing "one of the most ambitious industry-sponsored training programs ever undertaken by the institute."

I-B-R's new three-day "how to" course in the design and installation of hydronic heating and cooling systems will be conducted in 26 cities starting in January and continuing through an eight-month period.

More than 11,000 contractors, wholesalers, and others have attended the I-B-R schools since the program was initiated in 1950," it was noted. "The school recently was completely revised and includes classroom practice in I-B-R's advanced method of calculating residential cooling loads."

### DESIGN, CALCULATION PROBLEMS

Design and calculation problems will be discussed and worked out in the classroom.

Under the direction of Arthur Wales, I-B-R field training director who has conducted I-B-R schools since 1950, students will design systems for one and two-pipe forced hot water heating, series loop baseboard, combination heating and cooling, and independent chilled water cooling. Modern piping practices will be analyzed.

All of the I-B-R Guides, which are used as text books in the classroom, have been brought up to date. Cost of the Guides and other materials used in the classroom is included in the tuition of \$39.

A look at the '59 schedule shows there are 18 cities listed which were not included in last year's schedule, and several of the new cities listed are located in areas previously considered warm air territory.

### SEES EXPANDING MARKET

Commenting on the expanded schedule, Robert E. Ferry, I-B-R general manager, said, "Interest in hydronics is increasing tremendously. Old markets are expanding, and new markets are opening in areas where hydronics couldn't be sold before."

Pointing to the attendance record set last year, Ferry recalled that several schools were oversold and closed out at an early date. Ferry noted that the '59 schedule left no open dates. Therefore, no additional schools could be scheduled as was done in one instance last year, Ferry said. He recommended early registration.

Again this year, representatives of I-B-R member companies will form local committees which will contact contractors and wholesalers to offer information about the schools and sign up students.

For additional information write to I-B-R, 608 Fifth Ave., New York 22, N. Y.

The schedule of 1959 I-B-R heating and cooling schools:

Jan. 13-15—Washington, D. C. area (exact location outside of Wash.); Jan. 20-22—Richmond, Va.; Jan. 27-29—Hunt-

ington, W. Va.; Feb. 3-5—New Haven, Conn.; Feb. 17-19—Portland, Me.; Feb. 24-26—Garden City, L. I., N. Y.

March 3-5—Boston; March 10-12—White Plains, N. Y.; March 17-19—Philadelphia; March 31-April 2—Chicago; April 7-9—Minneapolis; April 14-16—Milwaukee; April 21-23—Grand Rapids, Mich.

May 5-7—Buffalo; May 12-14—Cleveland; May 19-21—Detroit; May 26-28—Providence, R. I.; June 9-11—Harrisburg, Pa.; June 16-18—Newark, N. J.; June 23-25—Springfield, Mass.

During July and August—Spokane and Seattle, Wash.; Portland, Ore.; Denver; Lincoln, Neb.; Ames, Iowa.

## These Folks Have Something To Smile About Welbilt Acquires Consolidated Industries

HUDSON MARQUEZ of New Orleans smilingly receives \$10,000 college scholarship won by his father, Edward Marquez, Jr. (rear), in a nationwide icemaker sales competition sponsored by Carrier Corp. Russell Gray (right), Carrier vice president and general manager of the Unitary Equipment Div., made the presentation as the boy's mother looks on and TV cameras record the proceedings. Educators from three leading universities and government officials attended the presentation held in New Orleans.



### Air Condition \$300,000 Flight Kitchen

OMAHA, Neb.—Announcing ft. of floor space, is completely that a recently-constructed air conditioned. Its features also include 2,800 sq. ft. of cold storage space. The new Omaha kitchen is one of 15 on United's 14,000-and-a-half building, with 7,500 sq. mile system.

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